## МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ МИКОЛАЇВСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ ІМЕНІ В.О. СУХОМЛИНСЬКОГО

Філологічний факультет

Кафедра загальної та прикладної лінгвістики

## Навчально-методичнЕ ЗАБЕЗПЕЧЕННЯ НАВЧАЛЬНОЇ ДИСЦИПЛІНИ

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**Зміст НМЗ**

1. Титульна сторінка.
2. Зміст НМЗ.
3. Навчальний контент.
4. Завдання для самостійної роботи.
5. Завдання для поточного та підсумкового контролю знань і вмінь з навчальної дисципліни.

**НАВЧАЛЬНИЙ КОНТЕНТ**

## ПРАКТИЧНЕ ЗАНЯТТЯ 1

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.

**Тема заняття:** Система органів тіла людини.

## Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила побудови, інтонування та вживання загальних питань в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* вживати та інтонувати питання спеціального типу в різних часових формах в умовно-комунікативних та комунікативних ситуаціях;
* читати текст з загальним зрозумінням прочитаного, із загальним охопленням змісту, з метою пошуку специфічної інформації;
* пояснювати, обговорювати визначення ботаніки як підрозділу біології, класифікацію рослин;
* здійснювати усний та письмовий переклад наукового та науково-популярного

тексту.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** plants, Plantae**,** liverworts, hornworts, mosses, club mosses, whiskferns, horsetails, ferns, cycads, ginkgo tree, conifers, flowering plants.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is the subject matter of Botany?*

* 1. Мотивація навчальної діяльності.

*What is the role of plants in ecosystem?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read and translate the text:**

**Botany** is the study of plants. The kingdom Plantae is divided into divisions (the term "division" was traditionally used instead of "phylum" as in the animals, but either term is now accepted).

* + - Hepatophyta, liverworts
    - Anthocerophyta, hornworts
    - Bryophyta, mosses
    - Lycophyta, club mosses
    - Psilotophyta, whisk ferns
    - Sphenophyta, horsetails
    - Pterophyta, ferns
    - Cycadophyta, cycads
    - Ginkgophyta, ginkgo tree
    - Gnetophyta
    - Coniferophyta, conifers
    - Anthophyta, flowering plants
    - Liliopsida, monocots
    - Magnoliopsida, dicots

Of these, the best known to most people are Bryophyta (mosses), Pterophyta (ferns), Coniferophyta (conifers), which are cone-bearing plants, and Anthophyta (angiosperms), which are flowering plants. Angiosperms are divided into two groups, dicots and monocots. Dicots have two cotyledons (embroyonic leaves), while monocots have only one cotyledon.

The names "Pinophyta" and "Magnoliophyta" are often used for "Coniferophyta" and "Anthophyta". Likewise, the monocots and dicots are called "Liliopsida" and "Magnoliopsida" respectively.

## Read the text and define the characteristic features of trees:

1. **Tree**

A **tree** is defined as a perennial plant consisting of one or more large woody stems. The component parts of a tree are the roots, trunk(s), branches, twigs and leaves. A small group of trees growing together is called a grove or coppice, and a large population of mixed tree species is called a forest.

Tree stems consist mainly of transport tissues (xylem and phloem). In fact, wood consists of xylem cells, and the bark is primarily made of phloem.

The roots of a tree are generally embedded in earth and absorb water and nutrients from the surrounding soil. Above ground, the trunk gives height to the leaf- bearing branches to aid in their competition with other trees for sunlight. In many tree species, the branches spread so as to present the largest possible leaf surface area to the sun.

A tree may not have all the organs mentioned here: most palms do not have branches, the saguaro of North America has no functional leaves, and tree ferns do not have bark. Based on their rough shape and size, all these are nonetheless considered trees.

Some types of tree can grow to over 100 meters tall and/or live for several millennia if circumstances are optimal. A plant that is similar to trees, but generally having smaller, multiple trunks, is often called a shrub, although boundary between the two categories is not precise.

Several biotopes are defined largely by the trees that inhabit them, for example, the rainforest and the taiga.

Trees often serve as important symbols in mythologies and religions. Examples are Yggdrasil in the Norse Mythology, the Christmas Tree that is derived from Germanic mythology, the Tree of Knowledge of Judaism and Christianity, and the Bodhi tree in Buddhism.

Trees show a wide variety of leaf types and shapes, bark, flowers, fruit, etc. Trees occur in several diverse families of plants. The earliest trees were probably tree ferns, which once grew in vast forests. Later the conifers, ginkgos and cycads appeared

(modern cycads no longer appear as trees). Most species of trees today are flowering plants, which were the most recent to appear. The list below gives some examples of well known trees and how they are typically classified.

## Read the texts and say if fruit and herb have anything in common:

1. **Fruit**

Botanically, a **fruit** is the ripened ovary of a flowering plant, dry or moist and fleshy. When discussing food, the term usually refers to fruits that are sweet and fleshy, especially ones that are not usually consumed by themselves at supper.

The two concepts partially overlap. Some culinary fruits are not fruits in the botanical sense, for example rhubarb: only the stems are edible.

On the other hand, some botanical fruits are not considered fruits in a culinary context. Gourds (e.g. pumpkins), tomatoes, and green peppers are fruits in the botanical sense, but are treated as vegetables in cooking. Some spices, such as allspice and nutmeg are botanically fruits. Some gymnosperms, such as juniper, have fleshy arils that resemble fruits.

Fig is an example of false fruit.

## Development

After being fertilized, the ovary begin to expand, the petals fall off quickly, the stamen can stick to the base of the ovary for a while. Ovules develop into seeds. When the ovary becomes fleshy, it is a fruit. It continues to expand until the seeds have matured.

## Variations

Some fruits have coats covered with spikes or hooked burrs, to prevent themselves from being eaten by animals and/or to stick to the hairs of animals, using them as dispersal agents.

Others fruits are elongated and flattened out naturally and become so thin like wings or helicopter. This is also an evolutionary mechanism to increase disperal distance.

## Herb

An **herb** is a plant grown for culinary or medicinal value. Typically, the green, leafy part of the plant is used. By contrast, spices are the seeds, berries, bark, or other parts of the plant. Herbs are distinguished from vegetables in that they are used in small quantities and provide flavor rather than substance to food.

Botanically, a herb is a plant that does not produce a woody stem. "The herb" is also a slang term for cannabis.

## Read and translate the text in writing:

1. **Seed**

Technically speaking, a **seed** is the sexually produced gamete fusion of the sperm and ovum of a plant. A seed is the egg from which a new plant will grow under the proper conditions.

Seeds are contained in either a protective seed pod or a fruit while they are developing. Because a plant is unable to move from the spot where it is planted, and because a young plant will have trouble growing under the shade of its larger parent, many plants have evolved ways for their seeds to travel to a new location to grow there and to spread the population. Some seeds are attached to feather-light fibre parachutes

that may be blown by the wind. Others have prickly burrs or spikes that will attach themselves to a passing animal's fur so that the animal will carry them away. Seedpods are often designed and shaped so that the seeds are flung away from the parent plant with great force when the seedpod springs open. And lastly, many seeds are contained within a sweet and juicy fruit that invites animals and birds to consume it. These seeds have a tough protective outer-coating so that while the fruit is digested, the seeds will pass through their host's digestive tract intact, and grow wherever they fall.

Some seeds require particular conditions to germinate, such as the heat of a fire (eg.many Australian native plants), or soaking in a body of water for a long period of time (e.g., mangrove and coconut).

The **kernel** is the essential part of a seed; all that is within the seed walls; the edible substance contained in the shell of a nut; hence, anything included in a shell, husk, or integument; as, the kernel of a nut. Also a single seed or grain; as, a kernel of corn.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: plants, Plantae****,*** *liverworts, hornworts, mosses, club mosses, whisk ferns, horsetails, ferns, cycads, ginkgo tree, conifers, flowering plants.*

1. Оголошення завдання для самостійної роботи.

*Choose a group of plants to prepare a report about its characteristics.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 2

**Організаційна частина.**

Повідомлення теми, мети заняття.

**Тема заняття:** Зовнішність

## Дидактична мета:

1. **Організаційна частина.**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила побудови, інтонування та вживання загальних питань в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* вживати та інтонувати питання спеціального типу в різних часових формах в умовно-комунікативних та комунікативних ситуаціях;
* читати текст з загальним зрозумінням прочитаного, із загальним охопленням

змісту, з метою пошуку специфічної інформації;

* пояснювати, обговорювати визначення зоології як підрозділу біології, класифікацію тварин;
* здійснювати усний та письмовий переклад наукового та науково-популярного тексту.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** appearance, slim, tall, short, stout, fat, plumpy, fair hair, brunette, bold headed, smart, gray hair, short sighted, quiet, impulsive, aggressive, talkative, enthusiastic.

1. Read and retell the text «Person’s character and appearance ».

2**.** Answer the questions on the text and say which of the statements /according to the text/ are true or false/

3. Discuss with your friends the appearance of your favourite film star.

3. Read and dramatize the dialogues on the topic.

4. Grammar exercises.

5.Summarizing.

**Ключові слова** : appearance, slim, tall, short, stout, fat, plumpy, fair hair, brunette, bold headed, smart, gray hair, short sighted, quiet, impulsive, aggressive, talkative, enthusiastic .

**Cамостійна робота:**

Writing. Write the words in the two lists (appearance and character): attractive/ calm/ confident/ good-looking/ intelligent/ nervous/ pretty/ quiet/ slim/ tall/ thoughtful/ ugly.

## Зміст основної частини заняття (перелік практичних завдань):

All animals are members of the Kingdom Animalia, also called Metazoa. This Kingdom does not contain prokaryotes (Kingdom Monera, includes bacteria, blue-green algae) or protists (Kingdom Protista, includes unicellular eukaryotic organisms). All members of Animalia are multicellular, and all are heterotrophs (that is, they rely directly or indirectly on other organisms for their nourishment). Most ingest food and digest it in an internal cavity.

Animal cells lack the rigid cell walls that characterize plant cells. The bodies of most animals (all except sponges) are made up of cells organized into tissues, each tissue specialized to some degree to perform specific functions. In most, tissues are organized into even more specialized organs. Most animals are capable of complex and relatively rapid movement compared to plants and other organisms. Most reproduce sexually, by means of differentiated eggs and sperm. Most animals are diploid, meaning that the cells of adults contain two copies of the genetic material. The development of most animals is characterized by distinctive stages, including a zygote, formed by the product of the first few division of cells following fertilization; a blastula, which is a hollow ball of cells formed by the developing zygote; and a gastrula, which is formed when the blastula folds in on itself to form a double-walled structure with an opening to the outside, the blastopore.

It is estimated that around 9 or 10 million species of animals inhabit the earth; the exact number is not known and all estimates are rough. Animals range in size from no more than a few cells to organisms weighing many tons, such as blue whales and giant squid. By far most species of animals are insects, with groups such as mollusks, crustaceans, and nematodes also being especially diverse. By this measure our own group, the vertebrates, is relatively inconsequential from a diversity pers pective.

Research continues on the evolutionary relationships of the major groups of animals. For the sake of convenience, the Animal Diversity Web follows the system outlined in Hickman and Roberts (1994). For some groups we incorporate the results of current research in our classification and discussion diversity throughout human history. Organisms can be classified according to any number of criteria, including overall similarities, colors, ecological functions, etc. However, it is generally agreed that the most useful way for scientists to organize biological diversity is to group organisms according to shared evolutionary history. This way the grouping not only results in an organized classification, it also contains and conveys information about our understanding of the **evolutionary history** of these groups. Although our understanding of evolutionary relationships among organisms has greatly improved in the last century, it is by no means complete. Relationships among organisms, and groups of organisms, continues to be revised as new data becomes available. The rate of such revisions has increased in recent years primarily as a result of the huge amount of new molecular data (such as DNA sequences) that has been brought to bear on tests of evolutionary relationships. This means that nearly all **taxonomies** (systems of nomenclature) based on evolutionary relationships among organisms are being revised, sometimes radically so. Traditional ideas about how organisms are

related, and in which groups they belong, often prove inaccurate.

Traditional, biological classification schemes included the idea of “ranks,” such as species, genus, family, order, class, etc. In this system (the Linnean system), for example, there is a Class Reptilia and a Class Aves. However, the bulk of evidence supports, and the majority of scientists now agree, that the group Aves belongs within the larger group Reptilia (birds share a most recent common ancestor with crocodiles, which are generally included in the Class Reptilia). Within a traditional, Linnean system of classification this means that either the Class Aves is demoted to something below a class, or that a class (Aves) exists within another class (Reptilia). Problems such as this have prompted many scientists to propose that a system of naming and classification of biological diversity be rank-free. Classification systems then only indicate the hierarchical structure of groups according to the current understanding of their evolutionary history, leaving out rank labels.

## Glossary of terms related to classification and naming of organisms:

**Classification** – a system of naming objects or entities by common characteristics. In a biological sense, classification is the systematic grouping of organisms based on structural or functional similarities or evolutionary history. A process of establishing, defining, and ranking taxa within hierarchical series of groups.

**Taxonomy** – the classification of organisms into a system that indicates natural relationships (evolutionary relationships); the theory and practice of describing, naming, and classifying organisms.

**Systematics** – the systematic classification of organisms and the evolutionary relationships among them; taxonomy.

**Phylogeny** – the evolutionary history of a group or lineage.

**Nomenclature** – the system of scientific names applied to taxa (groups of organisms).

## read:

* 1. **Read a part of the text and tell your groupmates about the group you**

**Segmented worms (Annelida)**

The animals in the Annelida are segmented worms. They have no legs, and no

hard skeleton. Unlike mollusks, annelid bodies are divided into many little segments, like rings joined together. There are many other kinds of worms, but only annelids are

segmented this way. There are three main groups of annelids, the earthworms (and their relatives), the leeches, and a big group that lives in the ocean and are called *polychaetes* (pol-ee-keets). We only have information about earthworms and leeches in the Critter Catalog.

## Snails and slugs (Gastropoda)

### What do they look like?

The Class Gastropoda includes snails and slugs. Most gastropods have a single, usually spirally coiled shell, but the shell is lost or reduced in some groups. Many snails have an operculum, a plate that closes the gastropod's opening. Shelled gastropods have mantles, while those without shells have reduced to absent mantles.

Gastropods have a muscular foot used for creeping in most species. In some, the foot is modified for swimming or burrowing. Most gastropods have a well-developed head that includes eyes at the end of one to two pairs of tentacles.

### Where in the world do they live?

Gastropods are found worldwide. Gastropods are by far the largest group of molluscs. Their 40,000 species comprise over 80% of living molluscs.

### What kind of habitat do they need?

Gastropods are found in freshwater systems, oceans, and on land wherever there is sufficient moisture.

## These animals are found in the following types of habitat:

temperate; tropical; terrestrial; saltwater or marine; freshwater.

## Terrestrial Biomes:

chaparral; forest; rainforest; scrub forest; mountains.

## Aquatic Biomes:

lakes and ponds; rivers and streams; coastal.

## Wetlands:

marsh; swamp; bog.

### How do they grow?

Gastropods lay eggs. The eggs of some species contain a large yolk. Development of the eggs may be within the body, or the eggs may be expelled to develop externally. Eggs develop into larvae. Those species that will develop a shell start it while larvae. As the animal develops, it adds another curl of shell, ending in an opening from which the head and foot of the animal emerge.

### How do they reproduce?

Gastropods are sexual, and some forms are hermaphroditic, meaning that a single individual can produce both egg and sperm. These individuals will exchange sperm with another individual rather than fertilizing themselves.

### What do they eat?

Gastropods feed on very small things. Most of them scrape or brush particles from surfaces of rocks, seaweeds, animals that don't move, and other objects. For feeding, gastropods use a radula, a hard plate that has teeth.

Gastropod feeding habits are extremely varied, although most species make use of a radula in some aspect of their feeding behavior. Some graze, some browse, some feed on plankton, some are scavengers or detritivores, some are active carnivores.

Primary Diet: carnivore (eats terrestrial vertebrates, eats non-insect arthropods); herbivore.

## Insects (Insecta)

The **Insects** are the most diverse and important group of animals on land. There are more species of insects than all other land animals put together. Insects live in all habitats and occupy any microhabitat you can imagine. They can be predators, prey, parasites, hosts, herbivores, or decomposers.

Insects are members of a larger group called **arthropods** (which also includes arachnids, myriapods, and crustaceans). All arthropods have a rigid exoskeleton, and legs that are jointed (arthropod means "jointed foot"). In order to grow, arthropods have to shed their whole exoskeleton all at once; this is called "molting." All insects have bodies which are divided into three sections: the head, thorax, and abdomen. In some insects these sections are fused together so they may be hard to tell apart, and some baby insects (called immature) do not have all three sections until they become adults. Nearly all insects have a pair of antennae on their heads. They use their antennae to touch and smell the world around them. Adult insects (and most immatures) have six legs that are attached to the middle section of the body, the thorax. Insects are the only arthropods that have wings, and the wings are always attached to the thorax, like the legs.

All insects lay eggs. There are two ways that insects grow: complete or incomplete metamorphosis. Insects that have **complete metamorphosis** have babies that look very different from the adults and often eat very different foods than adults. Butterflies, beetles, and true flies are some of the groups that have complete metamorphosis. The babies are called larvae. Caterpillars and maggots are examples of insect larvae. Larvae often have soft exoskeletons that stretch so they can grow fast, and they go through a resting stage called a pupa before emerging as an adult. Insects that have **incomplete metamorphosis** have babies that look like small adults with no wings. They usually eat the same kind of food as the adults do. Grasshoppers and cockroaches are two kinds of insects that have incomplete metamorphosis.

## Arachnids (Arachnida)

**Arachnids** are spiders, harvestmen, mites and ticks, and their relatives like scorpions that don't live in Michigan. All arachnids have eight legs, and unlike insects, they don't have antennae. The bodies of arachnids are divided into two sections, the cephalothorax in front and the abdomen behind. Sometimes times small arachnids like mites and harvestmen have the two sections fused close together so you can't see the separation. No arachnids have wings, although some spiders can float on the wind using long strands of silk. Many arachnids use silk, either to catch prey or to help them reproduce. Arachnids lay eggs, and have simple development where babies look like small adults and just get bigger as they grow. Some arachnids, especially the mites, change a lot in different stages of their lives. Arachnids are part of a larger group called **arthropods**, which also includes insects, myriapods, and crustaceans. All arthropods have an exoskeleton and legs that are jointed (arthropod means "jointed foot"). In order to grow, arthropods must shed their whole exoskeleton all at once; this is called "molting."

There are hundreds of thousands of species of arachnids. Arachnids are found in nearly all land habitats, and there are some in aquatic habitats as well. Most arachnids can only eat liquid food, not solid food, so they squirt digestive chemicals into their prey and suck out the juice. Arachnids are predators on insects and other invertebrates,

except for many mites, which feed on all kinds of things, like fungus, plants, dead animals, bacteria, and other invertebrates.

## Myriapoda

The Myriapods are centipedes and millipedes, and some small relatives. Centipedes and millipedes look similar to each other; they both look a little like worms with lots of legs. Actually they are arthropods, they have a tough exoskeleton and jointed legs, and they are related to insects and crustaceans. Like insects, myriapods have one pair of antennae, but they have many more legs than insects do. In Michigan, all myriapods have more than 20 legs, and all the other arthropods have fewer legs than that (most have only 6 or 8 legs).

Millipedes usually have round bodies, and have two pairs of legs on each body segment. They move slowly and often tunnel into soil and dead leaves. Nearly all millipede species are decomposers: they eat dead leaves, fungi, and detritus. If another animal threatens them, they may curl up, and some give off smelly toxic chemicals to protect themselves. Myriapods are an ancient group of animals, they were the the very first animals to live on land. Before them the only animals in the world lived in the sea.

Centipedes are usually flattened, and only have one pair of legs per segment.

Centipedes are quick predators, eating any small animals they can catch. They have a venomous bite, but no Michigan species are dangerous to people.

Both centipedes and millipedes need a damp environment to survive, and mostly live on or under the ground.

## Crustaceans (Crustacea)

**Crustaceans** are **arthropods**, related to insects and myriapods. They are the most diverse animal group in underwater habitats. Only a few crustacean groups have evolved the ability to live on land, and like amphibians, these terrestrial crustaceans still need water or damp places to live. Like all arthropods, crustaceans have a hard (sometimes very hard!) exoskeleton, and jointed legs. Unlike other arthropods, crustaceans have 2 pair of antennae. Sometimes one pair is very small and hard to see.

There are two main crustacean groups that live on land in Michigan. These are **isopods** and **crayfish**. Terrestrial isopods are sometimes called pillbugs, sowbugs, slaters, or roly-polies. These little animals have oval-shaped bodies with 14 legs and a hard exoskeleton of overlapping plates. The overlapping plates allow the animal to roll into a ball for protection from predators. Isopods feed mainly on dead plant material, and the fungus and micro-organisms that grow there. They can live in many habitats, as long as they can find some moisture and a dark place to hide. Most kinds of isopods live on ocean shores or on the sea bottom, but a few have spread across the land, far from the sea.

Crayfish look like small lobsters and are closely related to lobsters. They have one pair of big claws and 10 walking legs. Most crayfish live in freshwater, though a few species come out of the water at night to look for food or new places to live. Crayfish are omnivores, eating algae, small animals, and scavenging on larger dead animals too.

Both isopods and crayfish lay eggs, and the females carry their eggs under their bodies until they hatch.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: animal, evolutionary history, taxonomу, segmented worm, snails, slugs, insects, crustaceans.*

1. Оголошення завдання для самостійної роботи.

*Choose a group of animals to prepare a report about its characteristics.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 3

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.

**Тема заняття:** Іжа і характер людини.

## Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* форми модальних дієслів та їх еквівалентів та правила їх вживання.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* вживати модальні дієслова та їх еквіваленти в різних часових формах в умовно-комунікативних та комунікативних ситуаціях, письмових тексах різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати класифікацію живих організмів, давати характеристику виду.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** Domain - Archea, Eubacteria, Eukaryote, Kingdom - Plants, Animals, Fungi, Protists, Eubacteria (Monera), Archaebacteria, Phylum, Class, Order, Family, Genus, Species.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What are the principles by which living organisms are divided into groups?*

* 1. Мотивація навчальної діяльності.

*Why is classification of living things necessary?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Study the text, get ready to answer the questions.**

1. **Classification of Living Things & Naming**

With so many flora and fauna on planet Earth, there must be a method to classify each organism to distinguish it from others so it can be correctly identified. Classification does not only apply to biology. For example, supermarkets and grocery stores organise their products by classifying them. Beverages may occupy one aisle, while cleaning supplies may occupy another. In science, the practice of classifying organisms is called **taxonomy** (Taxis means arrangement and nomos means law). The modern taxonomic system was developed by the Swedish botanist Carolus (Carl)

Linneaeus (1707-1788). He used simple physical characteristics of organisms to identify and differentiate between different species.

Linneaeus developed a hierarchy of groups for taxonomy. To distinguish different levels of similarity, each classifying group, called **taxon** (pl. taxa) is subdivided into other groups. To remember the order, it is helpful to use a mnemonic device. The taxa in hierarchical order:

* Domain - Archea, Eubacteria, Eukaryote
* Kingdom - Plants, Animals, Fungi, Protists, Eubacteria (Monera), Archaebacteria
* Phylum
* Class
* Order
* Family
* Genus
* Species

The domain is the broadest category, while species is the most specific category available. The taxon Domain was only introduced in 1990 by Carl Woese, as scientists reorganise things based on new discoveries and information. For example, the European Hare would be classified as follows:

Eukaryote --> Animal --> Chordata --> Mammalia --> Lagomorpha --> Leporidae --> Lepus --> *Lepus europaeus*.

**Binomial nomenclature** is used to name an organism, where the first word

beginning with a capital is the genus of the organism and the second word beginning with lower-case letter is the species of the organism. The name must be in italics and in Latin, which was the major language of arts and sciences in the 18th century. The scientific name can be also abbreviated, where the genus is shortened to only its first letter followed by a period. In our example, *Lepus europaeus* would become *L. europaeus'.*

Taxonomy and binomial nomenclature are both specific methods of classifying an organism. They help to eliminate problems, such as mistaken identity and false assumptions, caused by common names. An example of the former is the fact that a North American robin is quite different from the English robin. An example of the latter is the comparison between crayfish and catfish, where one might believe that they both are fish when in fact, they are quite different.

Nomenclature is concerned with the assignment of names to taxonomic groups in agreement with published rules.

## Eukaryotes & Prokaryotes

Recall that there are two basic types of cells: **eukaryotes** and **prokaryotes**.

Eukaryotes are more complex in structure, with nuclei and membrane-bound organelles. Some characteristics of eukaryotes are:

* Large (100 - 1000 μm)
* DNA in nucleus, bounded by membrane
* Genome consists of several chromosomes.
* Sexual reproduction common, by mitosis and meiosis
* Mitochondria and other organelles present
* Most forms are multicellular
* Aerobic

Prokaryotes refer to the smallest and simplest type of cells, without a true nucleus and no membrane-bound organelles. Bacteria fall under this category. Some characteristics:

* Small (1-10 μm)
* DNA circular, unbounded
* Genome consists of single chromosome.
* Asexual reproduction common, not by mitosis or meiosis.
* No general organelles
* Most forms are singular
* Anaerobic

## The Three Domains

The three domains are organised based on the difference between eukaryotes and prokaryotes. Today's living prokaryotes are extremely diverse and different from eukaryotes. This fact has been proven by molecular biological studies (e.g. of RNA structure) with modern technology. The three domains are as follows:

**Archea (Archeabacteria)** consists of archeabacteria, bacteria which live in extreme environments. The kingdom Archaea belongs to this domain.

**Eubacteria** consists of more typical bacteria found in everyday life. The kingdom Eubacteria belongs to this domain.

**Eukaryote** encompasses most of the world's visible living things. The kingdoms Protista, Fungi, Plantae, and Animalia fall under this category.

## The Six Kingdoms

Under the three domains are six kingdoms in taxonomy. The first two, **Plants** and

**Animals**, are commonly understood and will not be expounded here.

**Protista**, the third kingdom, was introduced by the German biologist Ernst Haeckel in 1866 to classify micro-organisms which are neither animals nor plants. Since protists are quite irregular, this kingdom is the least understood and the genetic similarities between organisms in this kingdom are largely unknown. For example, some protists can exhibit properties of both animals and plants.

**Fungi** are organisms which obtain food by absorbing materials in their bodies. Mushrooms and moulds belong in this kingdom. Originally, they were part of the plant kingdom but were recategorised when they were discovered not to photosynthesise.

**Eubacteria** are bacteria, made up of small cells, which differ in appearance from the organisms in the above kingdoms. They lack a nucleus and cell organelles. They have cell walls made of peptidoglycan.

**Archae (or Archaebacteria)** are bacteria which live in extreme environments, such as salt lakes or hot, acidic springs. These bacteria are in their own category as detailed studies have shown that they have unique properties and features (ex. unusual lipids that are not found in any other organism)which differ them from other bacteria and which allow them to live where they live. Their cell walls lack peptidoglycan.

## Origins of Diversity

The diversity in our planet is attributed to diversity within a species. As the world changed in climate and in geography as time passed, the characteristics of species diverged so much that new species were formed. This process, by which new species evolve, was first described by British naturalist Charles Darwin as **natural selection**.

For an organism to change, genetic mutations must occur. At times, genetic mutations are accidental, as in the case of prokaryotes when they undergo asexual

reproduction. For most eukaryotes, genetic mutations occur through sexual reproduction, where meiosis produces haploid gametes from the original parent cells. The fusion of these haploid gametes into a diploid zygote results in genetic variation in each generation. Over time, with enough arrangement of genes and traits, new species are produced. Sexual reproduction creates an immense potential of genetic variety.

One goal of taxonomy is to determine the evolutionary history of organisms. This can be achieved by comparing species living today with species in the past. The comparison in anatomy and structure is based on data from development, physical anatomy, biochemistry, DNA, behaviour, and ecological preferences. The following are examples of how such data is used:

* Anatomy:

Although a horse and a human may look different, there is evidence that their arm structures are quite similar. Their arms' sizes and proportions may be different, but the anatomical structures are quite similar. Such evidence reveals that animals in different taxa may not be that different. Biological features from a common evolutionary origin are known as **homologous**.

* Development
* Biochemistry:

Biochemical analysis of animals similar in appearance have yielded surprising results. For example, although guinea pigs were once considered to be rodents, like mice, biochemistry led them to be in their taxon of their own.

## Phylogeny, Cladistics & Cladogram

Modern taxonomy is based on many hypotheses' of the evolutionary history of organisms, known as **phylogeny**. As with the Scientific Method, scientists develop a hypothesis on the history of an animal and utilise modern science and technology to prove the phylogeny.

**Cladistics** is a classification system which is based on phylogeny. Expanding on phylogeny, cladistics is based on the assumption that each group of related species has one common ancestor and would therefore retain some ancestral characteristics. Moreover, as these related species evolve and diverge from their common ancestor, they would develop unique characteristics. Such characteristics are known as **derived characteristics**

The principles of phylogeny and cladistics can be expressed visually as a **cladogram**, a branching diagram which acts as a family (phylogenetic) tree for similar species. A cladogram can also be used to test alternative hypotheses for an animal's phylogeny. In order to determine the most likely cladogram, the derived characteristics of similar species are matched and analysed.

## Classification of Living Things Practice Questions

* 1. If taxonomists had to select an existing kingdom to reclassify, which of the six would most likely be chosen? Why?
  2. Complete the following without consulting external sources:

1. The species *caudatum* is in the family *Paramecidae*. What would be the binomial name of this organism?
2. Give the abbreviation of the binomial name. 3.
3. Irish moss belongs to the genus *Chondrus*. The name for this species is *crispus*. Give the binomial name.
4. Give the abbreviation of the binomial name.
5. Humans and chimpanzees are alike. Which of the following data would most accurately prove this correct?
6. biochemistry
7. DNA
8. appearance
9. development
10. A, B, C
11. Which of the following is out of order?
12. Kingdom --> Phyllum --> Class
13. Class --> Family --> Order
14. Family --> Order --> Genus
15. Genus --> Species
16. A, C
17. A, B, D
18. B, C
19. A taxonomist discovers Organism A and Organism B and wishes to classify them. Which of the following choices is the most informative?
20. Both organisms are brown.
21. Both organisms have a tail.
22. Both organisms have ears.
23. Both organisms are nocturnal.
24. DNA analysis is usually done using DNA found in a cell's mitochondria, and not in a cell's nucleus. From your knowledge of mitosis, explain why this is so.

1. Arachbacteria 3.a) Chondrus crispus b) C. cripus 4. B 5. G 6. B

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: Domain - Archea, Eubacteria, Eukaryote, Kingdom - Plants, Animals, Fungi, Protists, Eubacteria (Monera), Archaebacteria, Phylum, Class, Order, Family, Genus, Species.*

1. Оголошення завдання для самостійної роботи.

*Choose a living thing to prepare a complete classification.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 4

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття. **Тема заняття:** Згубні звички**.**
   2. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* способи вираження припущення в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* користуватися різними способами вираження припущення в англійській мові в умовно-комунікативних та комунікативних ситуаціях, письмових тексах різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати функції живих організмів;
* писати короткий виклад основної інформації за текстом.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** Respiration, Regulation, Reproduction, Excretion, Growth, Nutrition, Transport, Synthesis.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What are the functions of living organisms?*

* 1. Мотивація навчальної діяльності.

*What are the characeristics of living organisms?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Study the text, identify the characteristics of living things, write the summary**

**Characteristics of Living Things**

* + 1. **Living things are highly organized, from the smallest part to the largest.**

On the chemical level: [atoms](http://build.tripod.lycos.com/resource/glossary.htm#atom) make up [elements](http://build.tripod.lycos.com/resource/glossary.htm#element). Each element has a specific number of [electrons](http://build.tripod.lycos.com/resource/glossary.htm#electron) that orbit the nucleus. In the center of the element, the nucleus has [protons](http://build.tripod.lycos.com/resource/glossary.htm#proton) and [neutrons](http://build.tripod.lycos.com/resource/glossary.htm#neutron). The number of protons in an element is always equal to the number the electrons. The number of neutrons may vary to make [isotopes](http://build.tripod.lycos.com/resource/glossary.htm#isotope) of that element. Elements come together to give up, accept or equally share electrons to make molecules.

The smallest part of an organism is a cell.

Some single-celled organisms are free-living and contain structures, called organelles, that allow them to be self-sufficient.

More complex organisms are multicellular. In the case of a human, cells are organized into [tissues](http://build.tripod.lycos.com/resource/glossary.htm#tissue). These have a common function like a muscle.

Tissues are organized into [organs](http://build.tripod.lycos.com/resource/glossary.htm#organ) like the heart.

Organs are organized into [organ systems](http://build.tripod.lycos.com/resource/glossary.htm#organ%20system), like the cardiovascular system. Organ systems functioning together make up a living [organism](http://build.tripod.lycos.com/resource/glossary.htm#organism).

A [population](http://build.tripod.lycos.com/resource/glossary.htm#population) is an organization of more than one individual. This is generally all of one [species](http://build.tripod.lycos.com/resource/glossary.htm#species) in a particular area. We could talk about the population of squirrels in our area or dogs or cats.

Enlarging our view, next comes a [community](http://build.tripod.lycos.com/resource/glossary.htm#community). An example of a community is the town or place we live. A more accurate biological description would include all the living things in that area. A community is composed of many species, including plants and animals

An [ecosystem](http://build.tripod.lycos.com/resource/glossary.htm#ecosystem) not only considers the living things in an area, but also the physical environment and the interrelated flow of energy. You may live in a desert ecosystem, a forest ecosystem, or another kind of ecosystem.

Most complex of all is the [biosphere](http://build.tripod.lycos.com/resource/glossary.htm#biosphere). In our case, this includes the all the areas of our planet where living things are found.

## All living things have an ability to acquire materials and energy.

Most of us call this eating! Then we have to be able to convert our food, a form of energy, to chemicals our cells can use through metabolism. Some organisms like plants, [algae,](http://build.tripod.lycos.com/resource/glossary.htm#algae) and some [microorganisms](http://build.tripod.lycos.com/resource/glossary.htm#microorganism) are [autotrophs](http://build.tripod.lycos.com/resource/glossary.htm#autotroph). The autotrophs we are most familiar with are the green plants that use [photosynthesis](http://build.tripod.lycos.com/resource/glossary.htm#photosynthesis) to make their own "food." Some bacteria use [chemosynthesis](http://build.tripod.lycos.com/resource/glossary.htm#chemosynthesis) for their energy source. Animals and [fungi](http://build.tripod.lycos.com/resource/glossary.htm#fungi) are [heterotrophs](http://build.tripod.lycos.com/resource/glossary.htm#heterotroph) and capture their food in a variety of ways.

The ability to acquire and use energy is extremely important. Without a constant input of usable energy, organisms would quickly become "disorganized" and die.

In order to survive, organisms must be able to achieve [homeostasis](http://build.tripod.lycos.com/resource/glossary.htm#homeostasis). Each type of organism has a specialized way to stay in balance with its outside and inside environments. A *paramecium* has a contractile vacuole that pumps excess water out of its cell in order to survive in a fresh water environment. You and I have an internal "thermostat" that helps us maintain a body temperature of about 98.6 degrees Fahrenheit.

## All living things have an ability to respond to their environment.

This often results in movement of the individual toward safety. This helps to ensure survival of the organism. For example, as young children we learned to avoid hot stoves and busy streets.

Plants also have some limited ability to move. They grow up toward the sun, and some have leaves able to turn to follow the sun, allowing them to photosynthesize better. Their roots grow down to search for water and minerals. If a plant doesn't get enough sunlight, water or minerals it will die.

## All living things have an ability to reproduce.

All living things, even the smallest bacteria, have a [chromosome](http://build.tripod.lycos.com/resource/glossary.htm#chromosome) containing [DNA.](http://build.tripod.lycos.com/resource/glossary.htm#DNA) [Prokaryotes](http://build.tripod.lycos.com/resource/glossary.htm#prokaryote) like bacteria only have one circular chromosome, called a plasmid. [Eukaryotes](http://build.tripod.lycos.com/resource/glossary.htm#eukaryote), multicellular organisms like plants and humans, have a species-specific number of chromosomes. As humans, we have 46 chromosomes, in 23 pairs. [Genes](http://build.tripod.lycos.com/resource/glossary.htm#gene) on chromosomes contain the instructions for the organism's structure and function.

However, the amazing diversity of organisms on earth have resulted because most organisms [reproduce sexually](http://build.tripod.lycos.com/resource/glossary.htm#sexual%20reproduction). Some, like earthworms are [hermaphrodites.](http://build.tripod.lycos.com/resource/glossary.htm#hermaphrodite) Most others have separate sexes, male and female, like marijuana plants, fish, birds, cattle and humans.

In order for two organisms to combine their genetic information without doubling the number of chromosomes given to offspring, Mother Nature came up with a way to reduce the number of chromosomes. Without it, each new generation would have double the number of its parents' chromosomes. This halving is done by [meiosis](http://build.tripod.lycos.com/resource/glossary.htm#meiosis) in the sex organs. In the female, the [ovary](http://build.tripod.lycos.com/resource/glossary.htm#ovary) produces [haploid](http://build.tripod.lycos.com/resource/glossary.htm#haploid) eggs and in the male the [testes](http://build.tripod.lycos.com/resource/glossary.htm#testes) produces haploid sperm. Each of these [gametes](http://build.tripod.lycos.com/resource/glossary.htm#gamete) contains only one chromosome from each of the pairs of chromosomes.

During [fertilization,](http://build.tripod.lycos.com/resource/glossary.htm#fertilization) the sperm and egg unite to form a [zygote](http://build.tripod.lycos.com/resource/glossary.htm#zygote), a diploid individual. This new individual is different from either parent, although it contains characteristics from both. This is what gives us the great diversity of life. In living things, we call this genetic [biodiversity.](http://build.tripod.lycos.com/resource/glossary.htm#biodiversity)

* + 1. **All living things have an ability to adapt.**

Modifications enable an organism to survive in its environment. [Natural selection](http://build.tripod.lycos.com/resource/glossary.htm#natural%20selection) allows individuals with better adaptations to survive better and reproduce more. Thus, their characteristics are passed into future generations and that makes the [species](http://build.tripod.lycos.com/resource/glossary.htm#species) stronger. However, it is important to note that individuals can only adapt to their environment, and species don’t adapt, they evolve.

All living things:

1. Are comprised of one or more units called cells
2. Reproduce (sexually or asexually)
3. Grow and develop
4. Obtain and use energy
5. Respond to their environment
6. All living things are comprised of cells.

Cell- a collection of living matter enclosed by a barrier that protects it from its surroundings.

**Unicellular organism**- a one-celled organism (e.g. bacteria)

**Multicellular organism**- an organism made of more than one cell, starfish, turtle)

1. All living things reproduce

…that is, they produce new individuals similar to themselves. Why is

reproduction necessary?

To replace the dead ones. Two Kinds of Reproduction: Asexual Reproduction:

* The prefix a- means without, so without sex.
* A single organism reproduces without the aid of another.
* Common among bacteria and other microscopic organisms
* Splitting (bacterial cells) or budding (plants) Sexual Reproduction:
* two cells from different individuals unite to produce the first cell of a new organism.
* Union of a sperm cell from male united with

egg cell from female.

\* Some organisms are capable of sexual and asexual reproduction.

1. All living things grow and develop

* Life does not necessarily mean continuous growth
* During growth organisms undergo a cycle of changes called development.
* Bodily maintenance occurs throughout life (requires energy). Aging occurs when an organism loses its ability to maintain itself.

1. All living things obtain and use energy · Energy required for growth and maintenance

* Energy (usually sugars) obtained from the environment
* Anabolism - a process (such as tissue growth) that involves synthesizing, or putting together, complex substances from simpler substances (sugars) (REQUIRES ENERGY)
* Catabolism- final breakdown (digestion) of complex substances into simpler ones, (*RELEASES ENERGY*)
* Metabolism- total sum of all chemical reactions in the body, or the balance between anabolism and catabolism

1. All living things respond to their environment Stimulus (plural stimuli)- anything that causes an organism to react

Irritability- the ability to react

Can plants respond to stimuli? Yes, but normally not as quickly as animals.

Homeostasis- (homeo- similar, -stasis standing) an organism’s ability to maintain

the constant or stable conditions necessary for life.

Just as the thermostat automatically cools or warms a room if it deviates from a desired temperature, your body maintains a constant temperature, 98.6 F or 37 C, at which it functions optimally.

## Living things are highly ordered.

1. **Living things are organized into units called cells.**
2. **Living things use energy from their environment**
3. **Living organisms respond to stimuli -**
4. **Living things develop.**
5. **Living things reproduce themselves**
6. **Living things contain genetic information**
7. **Read the text, imagine, how would you explain the subject to children. BIOLOGY** is defined as the study of life. **BIO**-'life' and **LOGY**-'the study of'

If you were to take a large number of living things, you would notice that they all have something in common. However, you would also know that they are different as well.

All living things show **UNITY** (similarities) as well showing a great deal of

**DIVERSITY** (differences).

Here is what all living things have in common...

* 1. All living things are highly organized and contain many complex chemical substances.
  2. All living things contain one or more cells. **UNICELLULAR**- contains just one cell **MULTICELLULAR**- contains many cells
  3. All living things use energy.
  4. Living things have a definite form and have a limited size.
  5. Living things grow.
  6. Living things respond to changes in the environment.
  7. Living things can reproduce.
  8. Living things eventually die.

Nonliving objects may show one, or even a few of these characteristics but they never show all of them...

We can take these characteristics of life and simplify each...these will make up the 8 life functions.

Scientists classify things as alive if they can carry out these 8 LIFE FUNCTIONS.

## R-Respiration R-Regulation

**R-Reproduction E-Excretion**

* 1. **rowth N-Nutrition T-Transport S- Synthesis**

**R R R E G N T S**=biology

Here is a look at the 8 life functions in a bit more detail...

**RESPIRATION** - the breakdown of nutrients to yield (or give off) chemical energy.

Тhere are 2 types

* + 1. aerobic respiration - uses oxygen
    2. anaerobic respiration - doesn't use oxygen

**REGULATION** - the process where a living thing controls and coordinates its various activities.

in animals

1. nervous system uses nerve cells
2. endocrine system uses hormones

in plants - some parts produce hormones

**REPRODUCTION** - the process by which living things produce new living things of the same kind

there are 2 types

1. asexual reproduction--involves one parent and the offspring are identical to the

parent

1. sexual reproduction--involves two parents and the offspring is a combination

of both parents

**EXCRETION** - the process by which living things remove waste products produced by cell activities

**GROWTH** - the process by which living things increase in size or cell number

**NUTRITION** - the process by which living things take in materials from its environment for growth and repair;

there are 2 types

1. autotrophic nutrition--where a living thing can make its own food
2. heterotrophic nutrition--where a living thing must ingest (take in) its food

**TRANSPORT** - the process by which usable materials are taken into the living thing (ABSORPTION) and distributed throughout the living thing (CIRCULATION)

**SYNTHESIS** - the process by which smaller, simple substances are combined chemically to form larger, more complex substances

If a living thing has all 8 off these life functions, it is called an **ORGANISM**! When we refer to all of the life functions of an organism, we are referring to its

**METABOLISM**--the total of all the life functions required to sustain life (to stay alive)

## R + R + R + E + G + N + T + S = METABOLISM

An organism's external (outside) environment is always changing. By keeping the control and regulation of its metabolic activities, an organism can maintain a stable internal (inside) environment. This is called **HOMEOSTASIS**.

**HOMEOSTASIS** - the process by which an organism's metabolic activities are in a state of balance, ex. body temp, blood sugar levels.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: Respiration, Regulation, Reproduction, Excretion, Growth, Nutrition, Transport, Synthesis.*

1. Оголошення завдання для самостійної роботи.

*Choose one of the functions of living organisms to prepare a complete description.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 5

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття. **Тема заняття:** Особистість. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* принципи творення та вживання пасивного стану часів групи Simple.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати пасивні конструкції в часових формах Simple в усному та писемному мовленні різних функціональних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати поняття таксономії та історію її виникнення.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** naturalist, natural history, application, scientific expedition, nomenclature, species.

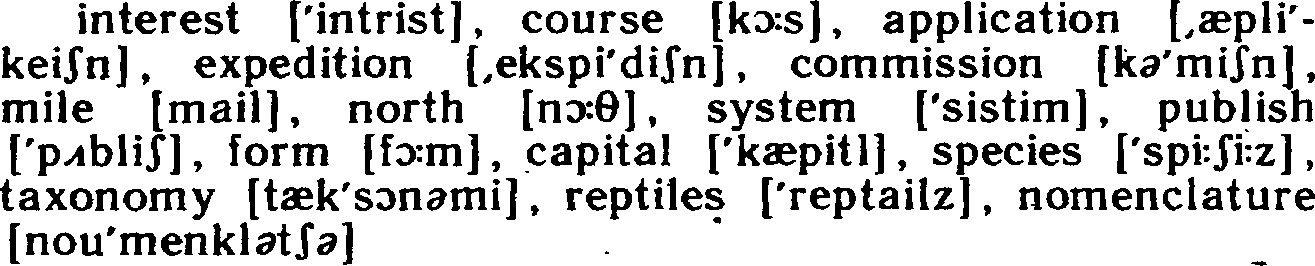
* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*How was the classification of living things created?*

* 1. Мотивація навчальної діяльності.

*Did the classification of organisms change since it had appeared?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read the following words and guess their meaning:**
  2. **Read and translate the text:**

**LINNEAN SYSTEM OF CLASSIFICATION**

Carolus Linneus was born in Sweden in a small wooden, house painted red with a roof of live turf. It was like many other houses in the village. But the house had a garden around it, so that Linneus used to say later that it was a good place for a naturalist to be born.

All the boy's teachers at school thought him stupid. But one of his father's friends observed that Carl took an unusual interest in plants and that he could identify a great many. He suggested sending Carl to study natural history. His father could give him only about forty dollars for his education, but it was thought that he could work his way. So he set off for the University of Lund. After a year he transferred to the University of Uppsala, since Uppsala had a very fine course of botany. His professor there soon grew very fond of him and saw a great promise in his work. After Linneus had finished his studies at the University with his professor's encouragement he made application to the Royal Society of Sweden to send him on a scientific expedition to Lapland. The Royal Society agreed to the commission. So on May 12, 1732 Linneus set out on foot on the, road leading north. He travelled mostly on foot over bad roads and through wild country for nearly a thousand miles. When he got back to Uppsala he gave a careful account of the things he had seen. The main thing among them was his new system of classification for plants and animals which he had worked out on his journey. Three years later this system was published under the title „Systema Naturae". This system has brought: order out of confusion. It was the system of nomenclature that has been used ever since.

According to Linneus system, every plant and every animal was given a double Latin name. The first word whose initial letter was capitalized would indicate to what "genus" or general class it belonged, the second word indicates a particular species. The naming of plants and animals in this way was a fascinating task. Linneus announced that everything in nature should be classified.

So science as orderly classified knowledge was coming into its own. The first edition of "Systema Naturae" was published in 1735. It contained only twelve pages, but its influence was enormous. Linneus is therefore considered the founder of taxonomy – the study of the classification. All the known animal species were grouped into six classes: mammals, birds, reptiles, fishes, insects and worms. The shortcomings were patched up easily enough later on.

This form of binominal nomenclature has given the biologist an international language for life forms that has eliminated incalculable amounts of confusion. He even supplied the human species with an official name; one that it has retained ever since – Homo sapiens.

## Notes to the text:

to be like smb. – бути схожим на

to come into one's own – виникнути, з’явиться на свет

to take interest in – цікавитися

to identify a great many plants – розпізнавати велику кількість рослин

to set off for the University – відправитися в університет

to set out on foot – відправитися пішки

to be fond of smb., smth. – любити когось, щось; захоплюватися кимось, чимось

to see promise in his work – побачити перспективу в роботі

to agree to a commission – погодитися на відрядження

to give account of smth. – звітувати, розповісти про щось

to work out – розробити

## Translate the following words bearing in mind the meaning of the affixes and memorize them:

nature (n), naturalist (n), natural (adj), unnatural (adj) to observe (v), observer (n), observation (n)

to suggest (v), suggestion (n), suggestive (adj) to transfer (v), transference (n)

to apply (v),.application (n), applicant (n)

to identify (v), identification (n), identity (n)

to encourage (v), encouragement (n), courage (n)

to agree (v), agreement (n), agreeable (adj), agreeably(adv) to lead (v), leader (n), leadership (n)

to announce (v), announcer (n), announcement (n)

## Form nouns using the following suffixes and translate them into Ukrainian:

* er: to publish, to research, to speak;
* or: to invent, to investigate, to translate, to visit;
* ant (ent): to study, to assist;
* ist: natural, special, biology.

## Arrange the following in pairs of synonyms:

vital processes, to estimate, main, country, enormous, to like, village, great, to think, to provide, living processes, to supply, principle, to account, to consider, to be fond of smth.

## Put as many questions as possible to the text and be ready to answer them.

**ІІІ. Підбиття підсумків заняття.**

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: naturalist, natural history, application, scientific expedition, nomenclature, species.*

1. Оголошення завдання для самостійної роботи.

*Prepare a report about life and scientific activity of Carolus Linneus.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 6

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.

**Тема заняття:** Медицина сьогодні.

## Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* принципи творення та вживання пасивного стану часів групи Continuous.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати пасивні конструкції в часових формах Continuous в усному

та писемному мовленні різних функціональних стилів;

* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати поняття таксономії та історію її виникнення;
* здійснювати письмовий переклад тексту науково-популярного стилю з англійської мови на українську та з української на англійську;
* писати короткий виклад основної інформації за текстом.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** systematics, binominal nomenclature, genius, standards, criteria, foundation, morphological features.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*How was the classification of living things created?*

* 1. Мотивація навчальної діяльності.

*Did the classification of organisms change since it had appeared ?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **State the tense of the following verbs and translate them:**

it is planted, he plants, they are being planted, they are to plant, I have planted, I had to plant, I had planted, it has been planted, he will plant, it will be planted, he is planting

## Define the tense and translate the sentences into Ukrainian:

1. They are planting a new sort of a tree.
2. He is being asked to follow the assistant.
3. He will be given every assistance in his work.
4. We are being waited for downstairs.
5. I am being asked about the system of classification.
6. I am often asked about this system.
7. They were told to go to the laboratory.
8. I was brought a new scientific journal.
9. The children are taught Botany at school.
10. The teacher is listening to the students.
11. The teacher is listened to.
12. We were looking at this picture.
13. We were looked at.
14. The doctor was sent for.
15. The doctor sent for the medicine.
16. We bought new equipment for our laboratory.
17. New equipment was bought for our laboratory.
18. This question must be looked upon from another point of view.

## Translate the following sentences into English using the passive constructions:

**І.**

1. Вчора мені дали цікаву книгу.
2. Нам показали декілька нових приладів.
3. Вам допоможе наш спеціаліст з мікробіології.
4. Йому запропонувати подумати про ваш винахід.
5. На нього зараз чекають в університеті.
6. Їй подякували за цю роботу.
7. На їхнє питання дадуть відповідь.
8. За цим дослідженням послідують інші.
9. Вас зараз попросять відповісти на кілька питань.
10. Вам дадуть відповідь.

## IІ.

1. Він цікавився рослинами і міг відрізнити їх одне від одного.
2. Він зазвичай прокидався о 6 годині ранку.
3. Він дуже подобався своїм викладачам.
4. Він подав документи до аспірантури.
5. Ми розробили план роботи.
6. Незважаючи на погані погодні умови, вони пішли пішки.
7. Ми зробили все, що від нас залежало.
8. Згідно з його класифікацією, всі живі організми поділяються на дві групи.

## Read and translate the text; say what new information about plants and animals you got from it:

The present-day science of taxonomy or systematics has been recognized as a specialized branch of biology for over 200 years. During the century, a Swedish doctor and botanist Carl von Linneus travelled over most of Western Europe and England, collecting and studying the plants and animals of the region. He had a passion for classification and a genius for minute and accurate observation and for detaching the important from the trivial. His standards for describing and naming plants and animals and the criteria by which he estimated relationships and affinities were innovations for his time. His method of classification and the system he used for the comparatively limited number of organisms that were known to him are the foundations upon which the modern systematic groupings of biological systems have been built.

Linnean system of classification was founded on the concept of a basic natural grouping of like individuals, called species. He conceived of the species as a fixed and unchangeable grouping of similar individuals. He based his comparisons principally on morphological features and species was characterized, named, and filed away as an immutable entity. Such a system is essentially static and does not recognize the possibility of change. With the development of theories of evolution, the concept of species has changed. In the constant change and evolution, a species cannot be regarded as absolutely fixed.

## Translate the text into Ukrainian and then back into English, compare your version with the original:

Living things are all about us. More than a million different kinds of plants and animals inhabit the earth. Some are our friends, others are our enemies. Some are very large and some are very small. Yet each is a distinct organism, and each has its own way of living.

Suppose you were asked to learn the names of all the living things on the earth. Try to do it. No, you couldn't do it; no one could. Fortunately, there are groups of animals and groups of plants that greatly resemble each other. Because of this fact living things may be classified into large groups.

To study living things, it is necessary to sort them into groups. About a million and a half different kinds of plants and animals have already been studied, identified and named. In fact, for people who have not studied biology, the living world is a hopeless conglomeration of individual plants and animals.

## Write a report on С. Linneus's life and work using additional literature. Give the main points of all the texts of the lesson and be ready to speak on the topic "The History of the Science of Taxonomy".

**ІІІ. Підбиття підсумків заняття.**

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: systematics, binominal nomenclature, genius, standards, criteria, foundation, morphological features.*

1. Оголошення завдання для самостійної роботи.

## Compose short dialogues for the following imaginary situations:

* 1. You came to a botanical museum and see a portrait of C. Linneus. Ask the guide about this scientist.
  2. You saw a picture of a tiger with a sign "Panthera Tigris". Ask your friend to

explain what it means.

* 1. You are to prepare a story on the system of classification, but you don't know what sources to use. Ask your friend for advice. What books on Linneus can he recommend?
  2. The teacher points to the tree and asks what it is. One student says that it is a common birch, the other – that it is Betula verrucosa. Each insists that he is right. How will you settle their argument?

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 7

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.
   2. **Тема заняття:** Лікарі без коркордонів.
   3. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* принципи творення та вживання пасивного стану часів групи Perfect.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати пасивні конструкції в часових формах Perfect в усному та писемному мовленні різних функціональних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати історію виникнення мікроскопу;
* здійснювати письмовий переклад тексту науково-популярного стилю з англійської мови на українську та з української на англійську;
* писати короткий виклад основної інформації за текстом.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** microscope, magnify, vision, lens, eyepiece, a beam of light, mirror, base, stage.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

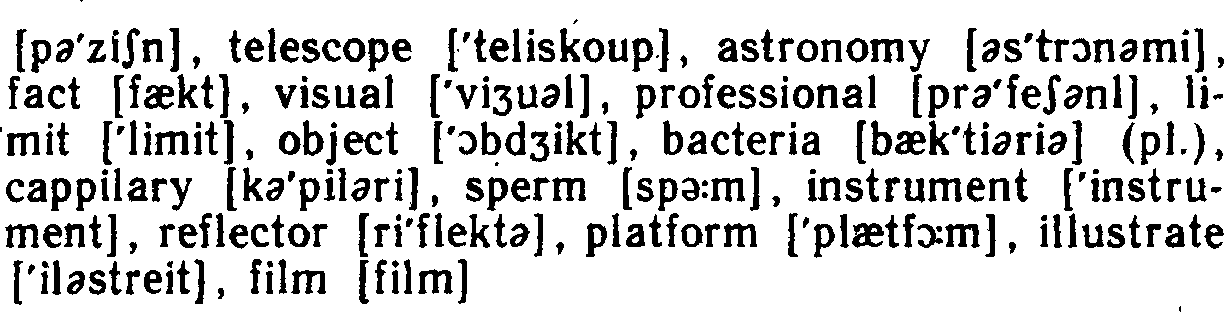
*What types of microscopes are there?*

* 1. Мотивація навчальної діяльності.

*What types of microscopes have you used for your investigations?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read the following words and guess their meaning:**



* 1. **Read the following words and guess their meaning:**

**THE MICROSCOPE**

Even the ancients had known that curved mirrors and hollow glass spheres filled with water had a magnifying effect. In the opening decades of the 17th century men began to experiment with lenses in order to increase this magnification as far as possible. In this, they were inspired by the great success of that other lensed instrument, the telescope, first put to astronomical use by Galileo [galə'lāō] in 1609.

Gradually, enlarging instruments, or microscopes (from Greek words meaning "to view the small") came into use. For the first time the science of biology was broadened and extended by device that carried the human sense of vision beyond the limit. It enables naturalists to describe small creatures with detail that would have been impossible without it, and it enabled anatomists to find structures that could not otherwise have been seen.

The first man, who made and used microscope was Anthony van Leeuwenhoek

['lāvən,hook; 'lāyən-]. He was not a professional scientist. In fact, he was a janitor in the city hall in Delft, Holland. He made more than 200 different microscopes, most of

which had only one carefully polished lens. With his homemade lenses, he explored all sorts of things and discovered a world never before seen by the eyes of man. He examined milk, water, insects, the thin tail of a tadpole, and many other objects. His discoveries of bacteria, blood capillaries, blood cells, and sperm cells made him famous. In 1675, he wrote the first description of the microscopic animals that live in water. Leeuwenhoek's microscopes were simple. But his great patience and keen powers of observation brought to light many new facts about living things.

THE MODERN MICROSCOPE. The microscopes of today are far more complicated than those of Leeuwenhoek's time. They are called compound microscopes because they contain more than one lens. At the top there is an eyepiece which has two lenses in it. Then there is a long tube with more lenses at the bottom. These are called objectives. You can choose different magnifying powers by swinging different objectives into position. The usual high school microscope has a choice of two powers. With the low power, you can magnify an object about 100 times. The high power objective with the usual eyepiece can enlarge things up to 500 times.

If you wish to examine an object under the microscope you must pass a beam of light through it. As the light passes through the lenses, it is bent in such a way that a magnified image appears. For this reason, anything you wish to see must be very thin. If it is too thick, the light will not go through it. Most microscopes have a mirror at the base. This can be moved in any direction. It reflects light up through the object and the lenses. The object, mounted on a piece of glass, is placed on a flat platform called the stage. Then the microscope is adjusted by moving the tube up or down. This places the objective at the correct height above the object. Unless you focus carefully in this way, you can not get a clear picture.

THE ELECTRON MICROSCOPE. There is a limit to the magnifying power of the compound microscope. The very best of them can enlarge an object up to 4000 times. In recent years a new type of microscope has been invented that does not use light. Instead, beams of electrons are passed through the object and a picture is made on film. The electron microscope can give us an image 25,000 times larger than the object. This development illustrates an important principle of science: when a new instrument is invented, it may speed up discoveries in the laboratory. Already, the electron microscope has made it possible to see things never dreamed of by Leeuwenhoek. We may be sure that in the future it will continue to reveal many new secrets of nature.

## Notes to the text:

to graduate from – закінчувати вищій навчальний заклад

a graduate – випускник

to a certain extent – до певної міри

to a great extent – в значній мірі

to a full extent – у повній мірі

in all appearance – цілком очевидно

## Translate the following words bearing in mind the meaning o f the affixes and memorize them:

to magnify (v), magnifier (n), magnification (n)

to increase (v), increase (n), increasing (adj), increasingly (adv) to decrease (v), decrease (n)

to inspire (v), inspiration (n)

to graduate ((v), gradual (adj), gradually (adv)

to extend (v), extension (n), extensive (adj), extensively (adv) to explore (v), explorer (n), exploration (n), explorative (adj) vision (n), visionary (n) (adj), visibility (n), visible (adj)

to observe (v), observer (n), observatory (n), observant (adj), observance (n) to complicate (v), complication (n)

to reflect (v), reflector (n), reflection (n), reflective (adj) to invent (v), inventor (n), invention (n), inventive (adj) to appear (v), appearance (n)

to disappear (v), disappearance (n)

## Underline the prefixes in the following words and translate them:

to discover, invisible, unknown, to exclude, indifferent, unnatural, to mislead, impossible, independent, irregular, nonliving, disorder; illegal

## State to what part of the speech the words belong and translate them into Ukrainian; form the corresponding verbs:

difference, assimilation, respiration, reproduction, organization, movement, magnification, resemblance, relation

## Form the nouns corresponding to the following verbs:

to discover, to construct, to affect, to know, to develop, to vary, to divide, 'to differ, to resemble, to observe, to suggest, to apply, to encourage, to agree, to magnify, to appear

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: microscope, magnify, vision, lens, eyepiece, a beam of light, mirror, base, stage.*

1. Оголошення завдання для самостійної роботи.

## Compose short dialogues for the following imaginary situations:

* 1. *You know that Leeuwenhoek was not a professional scientist. Yet he corresponded with the Royal Society in London, where he sent his descriptions of what he had seen through his microscope. One day he was visited by one of the members of the Royal Academy. Try to imagine the conversation that might have taken place.*
  2. *You are a teacher of zoology. This is your first lesson on the use of microscope. Instruct the students in its use.*
  3. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 8

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.
   2. **Тема заняття:** Міжнародна медична допомога **.**
   3. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила творення та вживання теперішніх часів в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* правильно будувати та доречно використовувати теперішні часи англійської мови в усному та писемному мовленні різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати принцип роботи та типи мікроскопів;
* здійснювати письмовий переклад тексту науково-популярного стилю з англійської мови на українську та з української на англійську;
* читати текст з метою пошуку специфічної інформації.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** microscope, magnify, vision, lens, eyepiece, a beam of light, mirror, base, stage.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What types of microscopes are there?*

* 1. Мотивація навчальної діяльності.

*What are the components a typical microscope consists of?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Translate the m following sentences into Ukrainian paying attention to the emphatic construction "it is... that";**

1. It was the electron microscope that finally revealed them as objects that could be seen.
2. It is the absence of vitamins that brings on diseases.
3. It is very important to begin the experiment in time.
4. It is the magnifying power of lenses that made it possible to see tiny things.
5. It was Carolous Linneus who suggested the first system of classification of living things.
6. It is necessary to use only very thin objects to see them under the microscope.
7. It was the new method of investigation that helped to finish the work so successfully.
8. Anton von Leeuwenhoek was the first man who penetrated through his lenses into the world of the microscope.

## Answer the questions:

1. Explain how a microscope is used.
2. What kinds of microscope do you know?
3. What is a compound microscope?
4. How does the electron microscope differ from the compound microscope?
5. Why are most compound microscopes more powerful than simple microscopes?
6. How will you examine an object under a compound microscope and an electron microscope? What is the difference?
7. Why can't you see cells or protoplasm when you put your finger under the microscope?

## Read the following text and try to retell it word for word:

By examining water from a lake or stream we will find that it is full of life. If you look carefully, you may find there the simplest animal, the ameba [ə'mēbə]. It is a tiny mass of jelly usually about 1/50 of an inch long. The ameba is surrounded by a very thin cell membrane, which is quite elastic. At times, a part of the membrane will push out, forming a false foot. The rest of the ameba will then flow into it. In this way, the little animal moves slowly about in its watery world.

## Read and translate the following text; say what new information about plants and animals you got from it:

Anton von Leeuwenhoek lived all his life in Delft. He had hardly any education and never learnt Latin, which in those days was the mark of an educated man. He worked when a boy as a clerk in a dry-goods shop. Part of his duty there was to examine textiles with a fine hand lens. Sometimes he placed the lens over other substances besides cloth — the skin of his own hand, the fiber of the wood on the table. Later on in his spare time he used to go to the spectacle makers and he learnt from them how to polish lenses. Afterwards he began making lenses himself.

The lenses he made were precise and beautiful. Altogether he made 247 instruments and some of them would increase the size of a minute object as much as 270 times.

After he had learned something about metalwork he could mount them. When he was about forty he became so interested in everything seen through his lenses, that he spent much of his time looking through his microscopes.

One day he had focused his microscope on a drop of water from a rain barrel and had found in it to his great astonishment "little beastics" as he called them, swimming about, He had found these little creatures not only in rain water, but in pond water, in the secretions of various animals, even in the saliva of his own mouth. Examining different objects he continued to find ail manner of strange little organisms, although he did not realize, that they might have any connection with diseases. Only in the 19th century Louis Pasteur developed and demonstrated by his experiments the germ theory. But it was Anton von Leeuwenhoek's discovery of microbes that started a new field of scientific investigation.

## Translate the text into Ukrainian and then back into English, compare your version with the original:

In science one of the most important discoveries having a great influence on the development of science was the fact that microscope has come into common use among scientists. The microscope gave scientists new power. Now they could see things that had been hidden. The first microscopes were very simple. They had only single lenses, some had double lenses with a tube between them. Anton von Leeuwenhoek was the first man who penetrated through these lenses into the mysterious world of the microbe. No one before his time had guessed that such tiny organisms existed.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: microscope, magnify, vision, lens, eyepiece, a beam of light, mirror, base, stage.*

1. Оголошення завдання для самостійної роботи.

## Compose short dialogues for the following imaginary situations:

а) Your younger sister comes up to you and asks what a microscope is. Tell her what instrument it is, how it is constructed and what it is used for.

б) You are going to make a report "From Leeuwenhoek to the present". What will you include in it?

в) You are given a microscope without a mirror and asked to examine a leaf of an apple-tree. Will you be able to do it? Discuss it with your friend*.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 9

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.

**Тема заняття:** Здоровий спосіб життя.

## Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* способи передачі минулої дії в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* правильно будувати та доречно передавати дію, що відбулася в минулому засобами англійської мови;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати різні види обладнання біологічної лабораторії;
* читати текст з метою пошуку специфічної інформації.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** microscope, high-tech scientific equipment, computer, slides, test tube, petri dishes, dye, indicator, beaker, flask, bunsen burner.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What types of laboratory equipment are there?*

* 1. Мотивація навчальної діяльності.

*What types of laboratory equipment have you used for your investigations?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read the text and defining the science of biology. What is the role of technology in the development of biology?**

*Biology* literally means the study of life. There are many different types of living organisms, environments, and combinations of genetic material. The science of biology includes all information related to studying living things, but a *biologist* does not and cannot study every facet of all living things. It would just take too much time. So, biologists specialize in certain areas of biology and focus their research.

With each specialist studying details of certain biological areas, the information can be pooled (usually at big conferences) and shared to make the knowledge base a bit wider. And that’s what *science* is: a continually growing knowledge base focused on things in nature, whether those natural things are banana trees, kangaroos, swordfish, dinosaurs, rocks, gases, or chemicals and cells that make up all of those things.

Biology is one of three major branches of science. Within these branches, the mysteries of life can be found and deciphered:

* + - *Biology* is the branch of science that deals with living organisms.
    - *Chemistry* focuses on the chemicals that comprise matter.
    - *Physics* focuses on the laws that Mother Nature set for all matter: living and nonliving.

It may be frustrating when the media reports conflicting findings. After all, one day margarine is better for your cholesterol level, and then the next day, margarine

produces harmful fatty acids that contribute to heart disease. However, when you hear those news reports, you are witnessing science at work. Years ago, when scientists figured out that high cholesterol levels contributed to heart disease, they correctly determined that a product created from vegetable oil rather than animal fat — margarine

— was a healthier choice if you were trying to lower your cholesterol level.

But scientists don’t just leave things alone. They keep wondering, questioning, and pondering. They are curious fellows. So they keep researching margarine. And, recently, they discovered that when margarine breaks down, it releases *transfatty acids*, which were found to be harmful to the heart and blood vessels. Yes, this makes your decision in the grocery store a bit tougher, but just be thankful the knowledge base is wider. Scientific information is continually evolving, just like the scientists who are gathering it.

## Read the text and make notes about aim and functions of the described equipment.

**Basic Equipment Used in Biology Experiments**

The daily routine of a biologist involves the use of basic equipment in their biology experiments — such as microscopes, test tubes, beakers, and Bunsen burners — as well as high-tech scientific equipment and computers.

This equipment is the bare-bone basics that you’d find in any laboratory. This equipment is necessary for the basic studies of biology: visualizing cells and organelles, as well as preparing samples of cells or fluids for testing or visualization, dissecting specimens, or mixing chemicals.

### Microscopes

Biologists use microscopes of differing powers to see organisms and samples more closely. They are high-powered, extremely expensive, and sensitive pieces of equipment that can make even the smallest parts of a single cell seem clear.

Instead of using beams of light to illuminate the specimen being viewed, as inexpensive light microscopes do, an electron microscope uses beams of electrons. The beams of electrons bring the finest details of the cell into focus and can allow even large molecules to be seen.

The smallest size you can see with your naked eye is 0.2 mm, which is equal to

200 micrometers. This size is equivalent to one ridge on your fingerprint. Light microscopes magnify cells up to 1,000 times. Using the shortest ray of light, which allows the highest resolution, light microscopes can view things as small as 0.2 micrometers in width — that is, 0.0002 mm.

For objects smaller than 0.2 micrometers, an electron microscope must be used. Electron microscopes allow you to see objects that are as small as 0.2 nanometers (nm), which is equal to 0.000000002 mm. In comparison to a light microscope being able to magnify 1,000 times, electron microscopes can magnify objects 200,000 times.

### Slides, test tubes, and petri dishes

To examine a specimen, biologists must place a sample — whether the sample is blood, mucus, saliva, skin cells, or urine — in or on something:

* **Slides:** If the sample is going to be viewed under a microscope, some of the cells

are gently smeared onto a glass slide, treated with a fixative so that the cellular

components don’t move, and covered with a glass cover slip.

* **Test tubes:** If the sample needs to be *centrifuged* — spun very rapidly to separate fluid and particles — or needs to have solutions added to it, then the sample most likely is placed in a test tube.
* **Petri dishes:** If a sample must be grown before it can be identified, the sample must be *cultured*. To culture a sample, a petri dish containing a culture medium is *inoculated,* or smeared and pressed, onto the medium.

The scientist must keep the petri dish at normal body temperature for the species being studied (humans: 98.6ºF, 37ºC) for approximately 24 to 72 hours and wait for the specimen to grow. A series of tests can then be done on the cultured specimen to determine what organism it is.

### Dyes and other indicators

*Dyes* are agents that color structures of the cell, which allow the structures to be more easily viewed when using a microscope. In some cases, stains make usually invisible structures visible. Some common stains include iodine and methylene blue. If iodine is placed on a sample that contains starch, such as a piece of potato, it will turn the sample dark blue.

*Indicators* are premade solutions or papers that are used to determine chemical characteristics, such as acidity and composition). Litmus paper is a common example. When dipped into a solution, litmus paper will turn red if the solution is acidic and blue if the solution is basic. Strips of pH paper have a range of colors that can be matched up to estimate the approximate pH of a solution.

### Forceps, probes, and scalpels

Sometimes animals are *dissected,* or cut apart in an orderly fashion, to find out more about structure or to teach the person doing the dissecting. Scientists already know volumes of information on the structure of animals, but dissection not only teaches you structure, it teaches you technique.

The following equipment is used to perform a dissection:

* A *scalpel* is an extremely sharp bladed instrument that can neatly split open skin and cut through muscle and organs.
* *Forceps* are used to hold tissue out of the way or to pick up a structure.
* A *probe* can be used to remove connective tissue or to lift a structure before it is dissected.

### Beakers, flasks, and Bunsen burners

The equipment that is common in a chemistry laboratory often is seen in a biology laboratory, too. Biologists also mix solutions and chemicals.

* *Beakers* are used when the solution mixed in it is going to be poured into something else. (They have a lip on them for pouring.)
* *Flasks* have a narrow neck and are used when the solution may splash out of a beaker or when the container of solution needs to be plugged at some point in the experiment.
* *Bunsen burners* are heat sources. They are cylinders attached to a gas line. When the gas line is opened, a spark ignites a flame in the Bunsen burner, which is then used to heat solutions. Sometimes solutions need to be boiled to release gases or to dissolve a solid into the solution.

## Match the word with its definition.

1. funnel
2. beaker
3. microscope
4. slides
5. electric balance
6. tongs
7. mortar
8. pestle
9. tripod
10. rubber tubing ll) gas tap
11. matches
12. measuring cylinder
13. test tube
14. test tube rack
15. pipette
16. conical flask 18 ) bung/stopper
17. 1ab coat
18. chemical
19. chemical reaction
20. chemist
21. chemistry
22. a tool that consists of two movable bars joined at one end, used to pick up an object
23. a scientific instrument that makes extremely small

things look larger

1. a short stick with a heavy round end
2. the science that is concerned with studying the structure of substances and the way they change
3. a round piece of rubber or wood used to close the top of a container
4. a round pipe made of rubber for liquids to go through
5. a substance used in chemistry or produced by chemistry
6. a tube used for pouring liquids or powders into a container with a narrow opening
7. an electric instrument for weighing things
8. a natural process in which the atoms of chemicals mix and arrange themselves differently to form new substances
9. a glass container used for measuring liquid
10. a thing glass tube for sucking up exact amounts of liquid, used especially in chemistry
11. a small glass container that is shaped like a tube and is used in chemistry
12. a piece of clothing that is worn over your clothes in

laboratory to protect them

1. a scientist who has a special knowledge in chemistry
2. a glass cup with straight sides that is used in hemistry for measuring and heating liquids
3. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: microscope, high-tech scientific equipment, computer, slides, test tube, petri dishes, dye, indicator, beaker, flask, bunsen burner.*

1. Оголошення завдання для самостійної роботи.

*Choose a each piece of laboratory equipment and describe its fu nctions.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 10

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття. **Тема заняття:** Світ природи.
   2. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила узгодження часів в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* правильно будувати та доречно передавати дію, що відбулася в минулому

засобами англійської мови;

* читати науковий текст з загальним зрозумінням прочитаного;
* викладати та обговорювати біографію Чарльза Дарвіна.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** medical school, natural history, naturalist, survey, theory of evolution, ancestors, the theory of natural selection.

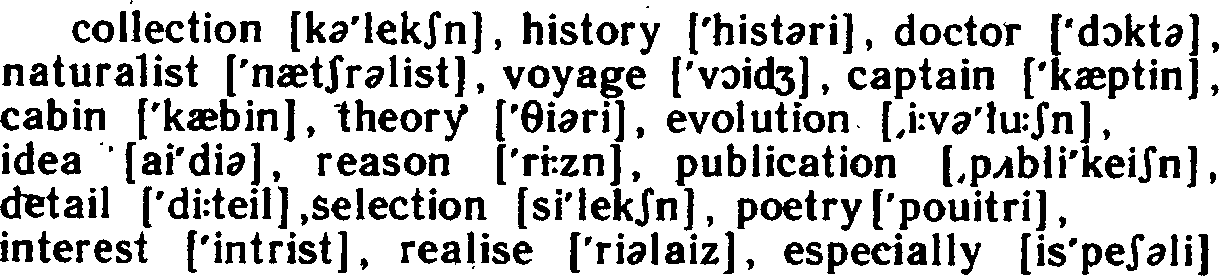
* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*"The Origin of Species by Means of Natural Selection" Who is the author of this work? What other works of this author do you know?*

* 1. Мотивація навчальної діяльності.

*What theory about how life appeared on earth do you support?*

## Зміст основної частини заняття (перелік практичних завдань):

1. **Read the following words and guess their meaning:**
2. **Read and translate the text:**

Charles Darwin was born in Shrewsbury, England. In those days schools did not teach science as they do today. Twelve-year old Darwin, who wanted to spend his time out of doors collecting plants and watching animals, had to stay inside and learn how to write poetry. He was very bad at it – so bad, in fact, that his father once wrote him angrily – “You care for nothing, but shooting dogs and rat-catching and you will be a disgrace to yourself and all our family”.

Charles's father then decided that he should be a doctor and sent him to a medical

school. But it soon became obvious that young Darwin was not at all interested in medicine. So his father tried to make a clergyman out of him and sent him to the University of Cambridge. Still Darwin couldn't make himself care for anything but hunting and natural history. As soon as he graduated, one of Darwin's professors, a scientist, who understood him better than his father urged him to apply for the job of naturalist aboard of the H.M.S. Beagle. The ship was to make a voyage around the world, surveying trade routes and looking for ways to improve trade for British merchants in the far-off corners of the earth. The captain was willing to give up part of his own cabin to any young man who would go without pay as naturalist. Today no one remembers how much the Beagle helped British merchants. The information the trip yielded about trade was far less important than the knowledge that was to change people's way of thinking. It was during his trip on the Beagle that Darwin first began to, develop his theory of evolution. Everywhere he sailed he collected facts about rocks, plants and animals. The more facts he gathered from different parts of the world, the more he became convinced that things he observed in nature could not be explained by the old idea that each species had been separately created.

The more he wandered and observed, the more he began to realize there was only one possible answer to the puzzle. If all these species of plants and animals had developed from common ancestors, then it was easy to understand their similarities and differences. At some time, Darwin thought, the common ancestors of both the island and mainland species must have travelled from the main land to the inlands. Later, all the species in both places, through slow changes, became different from each other.

After the Beagle returned to England, Darwin began his first notebook on the origin of species. During the next twenty years he filled notebook after notebook with still more facts that he and others discovered about the world of living things. These facts all led to one conclusion, that all living things are descended from common ancestors.

Darwin proved the truth of evolution, the descent with change of one species from another. Where others before him have failed, Darwin succeeded in convincing the

world that he was right about evolution. He succeeded for two reasons. He collected an enormous number of facts and put them together so that they told the whole story. And he not only declared that evolution occurred but he also explained how it worked and what caused it. This he called the theory of natural selection.

Nearly a hundred years have passed since Darwin's great book, "The Origin of Species by Means of Natural Selection", was published. People have found out new facts about evolution, and especially about inheritance. These facts have made more precise our ideas of how natural selection works. This does not mean the theory was wrong. On the contrary, a true theory is alive; like everything else in the world it changes and grows. Only a dead, useless theory stays the same down to the last detail.

## Notes to the text:

to fail – відчувати нестачу, не впоратися, схибити

his heart was failing – його сердце слабло

he failed his exams – він провалився на екзаменах

he failed to appear – він не з’явився

he managed to come – йому вдалось прийти

without fail – обов’язково, без сумніву

I succeeded in doing smth – мені вдалося…

care – турбота

to take care of – дбати

I don't саге – мені байдуже

he cared for nothing but – він ні про що не думав, окрім

to look – дивитись, виглядати

to look for – шукати

to look after – дбати про когось, спостерігати за кимось

to look at – дивитися на, звертати увагу

to look like – бути схожим на на

## Translate the following words bearing in mind the meaning of the affixes and memorize them:

to inform (v), informer (n), information (n), informative (adj) to select (v), selector (n), selection (n), selective (adj)

to collect (v), collector (n), collection (n), collective (adj) to explain (v), explanation (n), explanatory (adj)

to fail (v), failure (n)

to succeed (v), success (n), successful (adj), succession {n)

evolution (л), evolutional (adj), evolutionalism (n)

## Form the antonyms of the following words by using the prefixes — dis, mis, un, im, ex, non, de, il, ir:

possible, regular, living, organic, legal, natural, like, compose, understand, necessary, pleasant, appear, able, dependent, conscious, approval, liberate, belief, calculate, countable, variability, valuable

## Give the derivatives of the following words:

collect, assimilate, microscope, include, division, product, differ, direct, care, possible, publish, observer, evolution

## Translate the following sentences into Russian:

a)

1. He had to learn poetry instead of collecting plants.
2. He was to go on a sea trip.
3. In the late summer of 1831 "The Beagle" was to make a cruise around the world.
4. Though "The Beagle" was to push on across the Pacific, the greater part of her voyage was spent along the coast of South America.
5. In a small town in Kent he was to live and work for the rest of his life. b)
6. The more he saw the more he thought.
7. The more he worked the better he understood the importance of his discovery.
8. The earlier we shall begin the work, the sooner we shall finish it.
9. The more you read English books the easier it becomes for you to understand them.

c)

1. It was Charles Darwin who proposed the theory of evolution.
2. It was under the influence of his friend Henslow that Darwin began to read the works of great naturalists.
3. It was after a profound study of historical facts that he formulated his theory of evolution.

d)

1. He asked his son to think of some other occupation, but he could think of nothing but his going on the sea trip.
2. Nobody objected to it but his father.
3. Who but he could do such a thing?

## Write out from the text all sentences containing the sequence of tenses

1. **Translate the following sentences into Ukrainian:**

a)

1. He wrote in his letter that he would come.
2. I thought that you knew about it.
3. I heard that he had worked at this problem.
4. I remembered that you had those magazines.
5. He says that he lived in Cambridge.
6. He said that he lived in Cambridge.
7. He said that he had lived in Cambridge.
8. He said that his son would be a doctor. b)
9. Darwin's father thought that his son would be a doctor.
10. Darwin knew that his father wanted him to be a doctor.
11. His father wrote in his letter that Darwin cared for nothing, that he was shooting and hunting instead of studying.
12. He knew that his father's friend understood him better than his father.
13. He urged him that he should graduate some school.
14. He decided that he would go on a sea trip.

## Put the following sentences into the indirect speech:

1. Hе said: I'll teach you natural science; I like to collect different plants and watch the behaviour of these animals day and night; I have caught a tortoise today; I am reading about different species of animals.
2. He asked: Has he decided to publish the materials of his voyage? Does he like to go on a sea voyage? Did he explain the origin of different species in his book? What conclusion did you tome to after reading this book? Will you return this book in time? Do you like it? Have you made a report about it?

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: medical school, natural history, naturalist, survey, theory of evolution, ancestors, the theory of natural selection.*

1. Оголошення завдання для самостійної роботи.

## Get ready for the following imaginary situations:

* 1. *You are to write an article about Charles Darwin's voyage around the world. Make up a plan of your article. Which points of his voyage are the most important and why?*
  2. *An acquaintance of yours is going to make a voyage around the world. Advise him to follow Darwin's route, what places to visit and what to take note of.*
  3. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 11

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття. **Тема заняття:** Світ природи. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила передачі наказового способу у непрямій мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* правильно будувати та доречно обирати спосіб передачі наказового способу у непрямій мові засобами англійської мови;
* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
* пояснювати та обговорювати принципи теорії еволюції Дарвіна.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** mankind, race, natural historytheory of evolution, ancestors, the theory of natural selection, blood group A, blood group B, blood group AB, blood group 0.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is historical significance of "The Origin of Species by Means of Natural Selection" by Charles Darwin?*

* 1. Мотивація навчальної діяльності.

*What theory about how life appeared on earth do you support?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read and translate the following text; say what new information about plants and animals you got from it:**

**Darwin and evolution**

A hundred years ago people believed that plants and animals had always been as they are now. They thought that all the different sorts of living things, including men and women, had been put here by some mysterious power, a few thousand years ago.

It was Charles Darwin, born at Shrewsbury on February 12, 1809, who showed that this was just a legend. As a boy Darwin loved to walk about the countryside collecting insects, flowers and minerals. He enjoyed helping his elder brother at chemical experiments in a shed at the far end of their garden.

Because of this, his school friends called him "Gas'. These hobbies interested him much more than Greek and Latin, which were his main lessons at school. His father, himself a doctor, sent Charles to Edinburgh University to study medicine. But Charles disliked this work. He spent a lot of time with a zoologist friend, watching birds and other animals, and collecting insects in the surrounding countryside.

Then his father sent him to Cambridge to be trained as a clergyman. Darwin didn't want to be a doctor or a clergyman. He wanted to be a biologist.

## Translate the following into English:

Улюбленим заняттям Дарвіна було збирати рослини і спостерігати за тваринами. Він нічого не любив робити окрім колекціонування різних рослин. Дарвін мав стати лікарем, але зовсім не цікавився медициною. Якось він почув що якийсь корабель має здійснити подорож навколо світу. Саме на цьому кораблі Дарвін почав думати про теорію еволюції. Чим більше різних видів рослин і тварин він бачив, тим більше переконувався, що правий. Коли він. повернувся з подорожі, він почав писати книгу про результати своєї поїздки. Дарвіна ніщо не цікавило крім його книжки. Він продовжував збирати нові факти, і чим більше працював, тим ясніше бачив зв’язок у походженні різних видів тварин. Після тривалої роботи та спостережень він написав свою знамениту книгу «Походження видів», а в 1859 році описав як і чому один вид утворився з іншого. Чарльз Дарвін помер у 1882 році.

## Reproduce the text in your own words:

[З автобіографії Ч. Дарвіна]

Після повернення додому зі своєї нетривалої геологічної екскурсії по північному Уельсу, знайшов листа від Гекслі (Huxley), в якому мене сповіщали, що капітан Фіцрой згоден поступитися частиною власної каюти юнаку, який виряджався безплатно на «Біглі», як натураліст. Я, здається, розповів, в своєму

подорожньому журналі про всі обставини, що супроводжували мій від’їзд. Скажу лише, що я не вагаючись ані хвилини був готовий прийняти цю пропозицію; Батько ж відмовив мені навідріз, але, на щастя, додав наприкінці: «Я погоджуся, якщо хоч одна людина при здоровому глузді порадить тобі їхати!». Я того ж вечора відповів відмовою. Наступного ранку я поїхав підготуватися до початку полювання 1 вересня. Та коли я полював, за мною приїхав мій дядько, запропонував підвезти мене до Шрюсбері та поговорити з моїм батьком, оскільки дядьку здавалося, що я зроблю розсудливо, якщо прийму пропозицію.

## Answer the following questions:

1. What do you know of Darwin's childhood?
2. What kind of sport was he fond of?
3. Why was he sent to Cambridge?
4. Who urged him to apply for a job of a naturalist?
5. What was the opinion of his father about his voyage?
6. What was the purpose of the "Beagle's" sail?
7. What puzzled Darwin during his sail?
8. What countries and islands did the "Beagle" visit?
9. When did Darwin begin to think about his theory of evolution?
10. What in Darwin's opinion led to a constant fight for life?
11. Did his book „The Origin of Species by Means of Natural Selection" cause a

sensation and why?

1. What other books by Charles Darwin do you know? Have you read them?
2. Do you know where Charles Darwin is buried?
3. There were differences between animals and plants on the mainland and those on the island. What did Darwin think about it?
4. Say what you know about the biography of other biologists.
5. Speak about your hobby. What are you interested in?

## 5. Translate the text and give the main point of it in writing.

Since the days when men climbed down out of the trees, he has spread out all over the earth in hot countries and cold, in mountains, jungle swamps and fertile valleys.

Wherever men went they lived in ways that suited the climate and geography of the particular place where they settled. For a long time they continued to look pretty much alike. Then there developed differences – in their skin colour, in the shape of their heads and in other minor physical features. In Africa, the isolated group developed darker skins; in Asia, yellow skins and slanting eyes; in Europe – fair or "white" skins.

The feature most used to distinguish the mankind is the colour of their skin. All three races – black, white, and yellow – are very much the same in other physical features. In each race there are some people who are tall and some who are short; some are long-headed, some round-headed. In each race there are some people who belong to blood group A, some to group B, some to AB and some to O. But all races are members of the same species. And wherever and whenever any group of any colour had the chance, they did their part in forwarding the march of human progress. History does not belong exclusively to any one race; it is shared by all. No race is mo re generous than

any other race. You can make an important invention or write a great book or become a hero whatever the colour your skin or the shape of your head may be.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: mankind, race, natural historytheory of evolution, ancestors, the theory of natural selection, blood group A, blood group B, blood group AB, blood group 0.*

1. Оголошення завдання для самостійної роботи.

## Get ready for the following imaginary situations:

* 1. *A group of schoolchildren have come to visit our faculty. They have seen our wall-newspaper "The Beagle" and got interested in its title. Tell them what this title means.*
  2. *Your friend doesn't believe in evolution. With the help of a time-machine you have managed to take him to the primitive age (several million years back). You see only amphibians and primitive scorpion around. Trace the development of life on earth. Discuss it.*
  3. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 12

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття. **Тема заняття:** Світ тварин.
   2. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила трансформації розповідного речення у непрямій мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* передавати розповідне речення у непрямій мові засобами англійської мови;
* читати науковий текст з загальним зрозумінням прочитаного;
* давати визначення клітини, обговорювати історію її відкриття.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** cell, the cell theory, a single cell, protoplas, protoplasmatic organization, nonliving, living substance, division of pre-existing cells, atomic theory.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

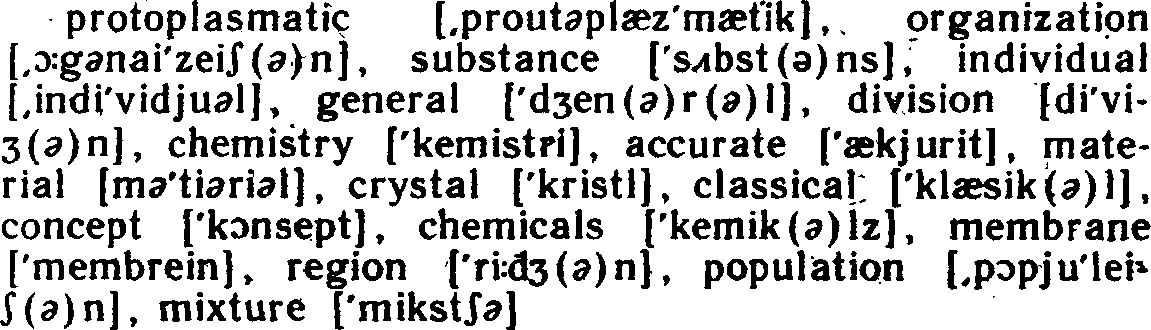
*What is the smallest structural unit of an organism? What does it consist of?*

* 1. Мотивація навчальної діяльності.

*What do you know about the cell theory?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read the following words and guess their meaning:**



* 1. **Read and translate the text:**

**THE CELL**

The unit of protoplasmatic organization is the cell. The word "cell" is not a very good choice in this connection, 'but it has significance in the history of biology. The name was given by Robert Hooke, one of the first scientists having used a newly developed biological tool, the microscope, to the tiny divisions that he saw in thin slices of cork. The cork slice, through his microscope, appeared to be made up of many small compartments, arranged in rows, and reminded him of the tiers of monks' cells in English monasteries. He therefore called each compartment a cell and the name has survived, although it does not accurately convey the picture of a living unit. What Hooke actually saw in the nonliving wall which had once surrounded the living protoplasm, was not the protoplasm itself. His microscopic studies of some other materials, such as feathers, fish scales, molds, snow crystals and fabrics, brought him closer to the sight of living cells but not close enough to see the living substance.

Observations of the classical microscopists and those of their successors on individual cells as parts of organisms, both plant and animal, led to one of the greatest and for a time most useful of biological generalizations, the cell theory. This concept was first brought to general attention in 1838.

It was a natural outcome of the many observations that had been made during the early part of the nineteenth and the preceding centuries. Briefly, it states that all organisms are composed of cells or of a single cell and that all cells, and hence all organisms, arise from the division of pre-existing cells. This theory was to biology, at that stage of its development, what Dalton's atomic theory was to chemistry.

## Translate the following words bearing in mind the meaning of the affixes and memorize them:

to signify (v), significance (n), significant (adj) to decompose (v), composer (n),

composition (n), decomposition (n)

to connect (v), connection (n), connective (adj) to organize (v), organizer (n), organization (n) to arrange (v), arrangement (n)

to generalize (v), generalization (n), generality (n), general (adj) concept (n), conception (n)

accurate (adj), accuracy (n), accurately (adv)

to actualized), actuality (n), actual (adj), actually (adv) attention (n), .attentive (adj), attentively (adv)

to brief (v), brief (n), brief (adj), briefly (adv)

## Underline prefixes and suffixes having the negative meaning and translate the words:

inconvenient, unfavourable, inorganic, invisible, countless, unpleasant disintegration, helpless, deformation, useless, irregularity, insoluble

## Form verbs from the following nouns:

classification, organization, development, division, change, use, appearance, usefulness, observation, composer

## Arrange the following in pairs of synonyms:

exact, concept, brief, result, immense, to exist, fundamental, tiny, sort, disease, idea, shortly, conclusion, great, to live, basic, kind, illness, similarity, to make a voyage, likeness, precise, to travel, tool, instrument, small

## Find a word or a phrase with a meaning similar to the following words:

Investigation, period, to situate, small, piece, instrument, idea, result, short, importance, precisely

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: cell, the cell theory, a single cell, protoplas, protoplasmatic organization, nonliving, living substance, division of pre-existing cells, atomic theory.*

1. Оголошення завдання для самостійної роботи.

## Compose short dialogues for the following imaginary situations:

* 1. *Ask your friend if there is any difference between a green plant cell and an animal cell, and between a cell membrane and a cell wall. Discuss his answer.*
  2. *A new student joined your group. He had studied at the Physical faculty. He*

*doesn't know anything about the cell theory. Tell him all you know about it.*

* 1. *A space ship carried some substance to the Earth from another planet. Examining it under the microscope you saw a cell. What conclusion can you draw from this fact?*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 13

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття. **Тема заняття:** Світ тварин. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила трансформації питальних речень різних типів у непрямій мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* передавати питальні речення різних типів у непрямій мові засобами англійської мови;
* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
* пояснювати та обговорювати дослідження клітини.
* складати план тексту;
* здійснювати письмовий переклад тексту науково-популярного стилю з англійської мови на українську та з української на англійську.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** cell, the cell theory, stable condition, cytoplasm, nucleus , a thin cell membrane, nerve, muscle, bone, blood tissues surface, complex enzyme.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What are the methods of cell investigation?*

* 1. Мотивація навчальної діяльності.

*What types of cells have you investigated? How?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read and translate the following text without a dictionary and guess the meaning of the unfamiliar words:**

Very little can be seen in living cells with the ordinary light microscope. The structure of the cells has been made visible by various procedures: killing the cells, fixing their components in a stable condition, and staining these components so that their structural details may be observed. Cell material was embedded in a substance, which can be cut in very thin sections for viewing. The development of the light microscope has been paralleled by the development of method for preparing cells for study. By 1920 all the major components of cell which can be demonstrated with the light microscope have been described.

## Draw up a plan of the text "The Cell" using sentences from the paragraphs or putting questions to each paragraph.

* 1. **Translate the fоllowing passages and entitle them:**

1. What can you see when you examine different organs under the microscope? One thing will quickly stand out. No matter what part of the body you examine, you will find cells. They are the smallest living units of the body, just as bricks are the smallest units of a brick wall. Like other animal cells, each has cytoplasm, a nucleus and a thin cell membrane. The cells of the body are built in such a way that they can do their special work best. For example, muscle cells are long and elastic. Nerve cells are very sensitive. They have many ranches which connect with other nerve cells or with muscles or glands.

Cells are so tiny that countless numbers of them go into the formation of our bodies. Our body consists of many different kinds of cells. These cells make up our tissues, which make up the organs. A tissue is nothing more than a group of similar cells all doing the same job. We have nerve, muscle, bone and blood tissues among others.

1. Cells, as seen under the light microscope or the electron microscope, are exceedingly complex structures. We find that these cellular arrangements have a functional significance and that specific cellular structures are associated with specific chemical components and specific biochemical properties.

Surrounding the nucleus of the cell is the cytoplasm. Embedded within the cytoplasmic sap may be distinguished such structures as mitochondria, a network of partitions from which microsomes are derived, secretory granules, and other inclusions, each being with a complex internal structure of its own. The cell is surrounded by a cell membrane.

1. The cell membrane is the "surface of separation" between the cell and its surrounding fluid; it may or not be differentiated histologically. In the region of the sur- face, or in the membrane itself, are complex enzyme systems maintained from within the cell, actively transferring substances from the environment into the cell, actively extruding substances out of the cell.
2. The cell nucleus is the largest and densest of the structures isolated from an animal cell. A surrounding membrane regulates the exchange of materials between the nucleus and the cytoplasm. Within the nucleus can be seen spherical nucleoli, and the chromatin threads which carry genes. The units of hereditary control are arranged along them. The characteristic component of nuclei is deoxyribonucleic acid, DNA carrying by virtue of their chemical structure, the genetically inherited information required for the maintenance of the whole cell.

## Put as many questions to the text as it is possible and ask your fellow student to answer them:

**Cells, Tissues, Organs, and Systems**

With few exceptions, protoplasm is organized into microscopically visible units called cells. Cells are the smallest living units (except for the viruses). They are variously shaped, have a considerable range of size, and are associated in different ways. They all have structural features in common.

In some instances single cells constitute entire organisms, each such cell carrying on all the life processes. Or small numbers of cells may be associated in colonies. In these colonial groups all cells appear similar and have the same function. In other aggregation of cells there is often division of labour, particular cells being more con- cerned with some life functions than with others. This division of labour becomes increasingly important in the higher forms of life which have great structural comple- xity. In these higher plants and animals the cells are organized into tissues, or groups of cells with similar structure and functions. Combinations of tissues make up organs with more or less distinct functions. In the animals, which are functionally more complicated than plants, the organs are associated in systems, or groups of organs that are collectively responsible for certain functions.

## Translate the text into Ukrainian and then back into English, compare your version with the original:

Robert Hooke, an English scientist, who lived at the same time as Leeuwenhoek also made and used microscopes. One day, he cut a very thin slice of cork and put it under his lenses. He noticed that it was made of "a great many little boxes" separated by walls. He compared these to the cells of honey comb. All of the cells were filled with air. This explained why cork was light and why it floated so easily.

The piece of cork that Hook examined was not alive. At one time, each "cell" had contained living matter, but the living material had died. As scientists continued to examine living things under the microscope, they slowly came to realize, that both plants and animals were made up of cells. One can easily see living plant cells in a very thin strip of onion. These cells fit together much like the bricks in a house. They have a cell wall made of non-living woody matter.

## Reproduce the text in your own words:

Клітина – елементарна жива система, яка складається з двох головних частин – цитоплазми і ядра. Вона є основою будови, розвитку життєдіяльності всіх тварин і рослинних організмів. Клітинна будова виявляється на різних рівнях організації живої природи. Отже клітини, що складають тіло бактерій та найпростіших, є самостійні організми; на відміну від того, клітини, що входять у склад тканин багатоклітинних організмів уявляють собою елементи, цілком підлеглі цілісному організму. Основні плани будови тваринних і рослинних клітин схожі, однак останні відрізняються деякими особливими рисами. У тварин нема, наприклад, мікроскопічно видимих оболонок, а всі рослинні клітини оточені добре вираженими целюлозними оболонками, які можуть мати складну побудову і включати різні органічні та неорганічні речовини. Клітина як жива система підтримує та відновлює свою цілісність, адаптується до умов середовища та виконує різні функції за рахунок енергії речовини, що поповнюється з оточуючого середовища. Будь яка клітина, будучи порівняно високо упорядкованою формою живої матерії, являє собою складну хімічну сполуку. Саме внутрішня структура клітини забезпечує взаємодію одних ферментів і відокремленість інших, завдяки чому біохімічні реакції відбуваються узгоджено та в певній послідовності.

Опис особливостей, притаманних більшості тканинних клітин і клітин найпростіших, складає задачу загальної цитології. Спеціальна цитологія вивчає окремі морфологічні види клітин.

## Give the main points of alt the texts of the lesson and write a report on "Cell Structure".

**ІІІ. Підбиття підсумків заняття.**

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: cell, the cell theory, stable condition, cytoplasm, nucleus, a thin cell membrane, nerve, muscle, bone, blood tissues sur- face, complex enzyme.*

1. Оголошення завдання для самостійної роботи.

## Compose short dialogues for the following imaginary situations:

1. *When the cells are placed under the microscope they will die, if they become dry. From your knowledge of protoplasm explain the reason for this.*
2. *Some old scholars were convinced that protoplasm has a nucleus structure, others said it is fibrillar, the third group tried to prove that it is cellular. All of them were mistaken. Why so?*
3. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 14

* 1. **Організаційна частина.**
     1. Повідомлення теми, мети заняття.
     2. **Тема заняття:** Міжнародна допомога тваринам.
     3. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила утворення та функції різних форм дієприкметника.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати різні форми дієприкметника в усному та писемному мовленні різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати та обговорювати структуру та значення протоплазми;
* складати план тексту.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова****: protoplasm, cytoplasm, bacteria, cell, the cell theory, stable condition, nucleus, minerals, substance.*

* + 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

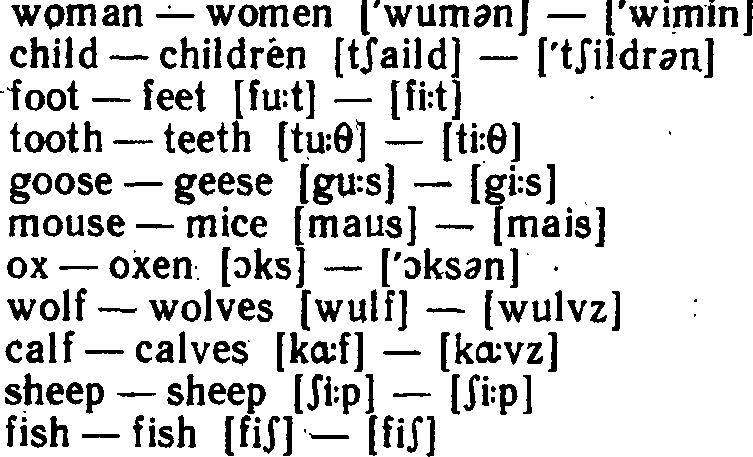
*What do you know about protoplasm?*

* + 1. Мотивація навчальної діяльності.

*What is the role of protoplasm?*

## Зміст основної частини заняття (перелік практичних завдань):

1. **Remember the following nouns in the plural:**



## Read the following nouns of Latin and Greek origin and guess their meaning; mind their forms in singular and plural:

species – species analysis – analyses bacillus – bacilli stimulus – stimuli nucleus – nuclei genus – genera

phenomenon – phenomena

datum – data maximum – maxima bacterium – bacteria medium – media alga – algae

stoma – stomata

## Read and translate the text:

**THE STUFF OF LIFE**

In their attempts to solve the mysteries of life, scientists have given much attention to the jellylike living material of the cell. This substance is called protoplasm. They have studied it under high-powered microscopes; broken it down into its basic chemicals; treated it with dyes and electric currents; and dissected it with microscopic needles. Yet no one has succeeded in making any protoplasm. It is one of the most complicated of all substances. We have learned many facts about it, but there are still many secrets to be discovered. Scientific research goes on, because protoplasm is the key to a real understanding of life.

Under the microscope, protoplasm is an almost colourless substance. At times it is quite liquid, but it can easily change to a more solid jelly. All the living parts of the cell, including the cell membrane, the cytoplasm, and the nucleus are made of protoplasm. With a high-powered microscope we can see many small particles and bubbles floating in the jelly. These are often in rapid motion.

The chemical nature of protoplasm was not exactly known. Unfortunately, when chemists begin to analyse it, it usually dies. This brings about changes in the material they are studying. We do know that protoplasm is usually more than 75 per cent water. There are also salts and food materials such as sugars, fats, and proteins. Four chemical elements make up 98 per cent of protoplasm. These are carbon, oxygen, hydrogen, and nitrogen. More than 15 other elements have been found. All of these are the common elements of which our earth is composed. There are no special elements that are found only in protoplasm. But such rare elements as strontium (Sr), rubidium (Rb), tin (Sn), nickel (Ni), gold (Au) and mercury (Hg) may enter into the composition of protoplasm as well. Where the soil is especially rich in certain minerals, the plants growing there may incorporate them, and they may find their way into the tissues or hard parts of animals that feed upon the plants. In some parts of the world gold is particularly abundant in the soil, and the hoofs, horns and' hair of the deer living on the vegetation in these regions show relatively large accumulations of it: Radioactive elements in some regions are accumulated in the mosses and in vegetation of the region. These plants are the food for many animals and analysis shows that these animals are also accumulating radioactive particles in their tissues. The food chain is extended to people living in these regions who feed upon these animals and in turn incorporate the particles in their own tissues. As a result their bodies contain a relatively high account of radioactive particles as compared with the population in general.

As a summary it should be noted that protoplasm is a very complicated mixture of many kinds of substances. These are in constant activity, carrying on the processes of life. When the activity stops, life comes to an end.

## Notes to the text:

to go on – продовжувати

I am going to go on – Я збираюсь продовжувати

at times – час від часу

to treat – піддавати дії, ставитися, лікувати

good fortune – удача

bad fortune – неудача

## Translate the following words bearing in mind the meaning of the affixes and memorize them:

to solve (v), solution (n), soluble (adj), solubility (n) to solidify (v), solid (n), solidity (n), solidification (n) to treat (v), treatment (n), treaty (n)

to dissect (v), dissection (n)

fortune (n), fortunate (adj), fortunately (ady), unfortunately (adv) to relate (v)\ relation ((n), relationship (n), relativity (n)

to accumulate (v), accumulator (n), accumulation (n) to contain (v), container (n)

to compare (v), comparison (n), comparative (adj), comрагаblе (adj)

## Form adjectives from the following nouns by adding the suffix ‘аl’ and

**translate them into Ukrainian:**

function, origin, condition, centre, structure, practice, logic, nature, evolution, addition

## Form adjectives from the following verbs by adding the suffix "able" and translate them into Ukrainian:

to desire, to move, to manage, to consider, to distinguish, to compare, to favour, to observe, to change, to question

## Find the derivatives of the following words in the text and state what parts of speech they are:

abundance, mysterious, attentive, microscopic, treatment, success, complication, solidity, exclude, fortune, exchange, usually, comparative

## Form the plural of the following nouns:

stimulus, nucleus, century, woman, goose, city, fish, toy, property, phenomenon, tooth, activity, genus, datum, nucleus, alga, bacterium, process, theory, box, medium, boundary

## Find synonyms to the following words:

research, substance, learn, to make up, to enter, certain, hard, enormous, to supply, rapid, occur, cause

## Translate into Ukrainian, paying attention to the meaning of "some", "same", and "one":

1. They made some experiments to prove their theory.
2. They repeated the same experiment several times.
3. One should not forget it.
4. The ideal potato soil is one that is rich in humus.
5. One must know that salts are formed when basic and acid oxides combine together.

## Translate into Ukranian paying attention to participles: a)

1. He is doing research in the field of biology.
2. While doing research he suggested a new theory.
3. The leading scientists of the world doing research in this field came to the conference.
4. The technology applied improved the quality of the experiment.
5. The result obtained showed that I was right.
6. The invited delegates were told about the work of our institute.
7. The data collected helped me in my work.
8. He was invited to this conference.
9. When invited I always came.
10. Having been invited beforehand he had a lot of time to prepare his report.
11. Having come into the room the lecturer began his lesson.
12. Having used a new method scientists obtained good results.
13. Scientists must concentrate their efforts on the aspects of science having the greatest promise for the future.
14. The results being obtained at this laboratory are of great importance.
15. Boeing asked to give the material and some pictures for publication he did it with pleasure.

## b)

1. The exercises having been written in pencil, we had to rewrite them.
2. The problem having been solved, we could carry on the necessary experiment.
3. Having returned from the expedition he began preparing a report about his

work.

1. My friend having returned from the expedition, we shall see him in our

laboratory in a few days.

1. He was asked a great many questions, some of them being very difficult to answer.
2. The first part of the work having been finished, the results were published in a scientific journal.
3. Having been shown the journal, he asked his friend if he could lend him the book for a few days.
4. Being well written, the article was short and clear.
5. The article being well written, he read it with pleasure.
6. Our work having been completed, he made a report at the scientific conference of the students.
7. The problem having been approached from different points of view, its practical significance was stressed again.
8. The report having aroused a great interest both among the students and the specialists, the latter took part in the discussion too.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: protoplasm, cytoplasm, bacteria, cell, the cell theory, stable condition, nucleus, minerals, substance.*

1. Оголошення завдання для самостійної роботи.

## Get ready for the following imaginary situations:

1. *A student of your group is to examine protoplasm, but he doesn't know how to do it. Help him.*
2. *An acquaintance of yours has heard something about protoplasm and says that it resembles water. Describe the appearance of protoplasm and explain the difference.*
3. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 15

* 1. **Організаційна частина.**
     1. Повідомлення теми, мети заняття. **Тема заняття:** Рідкі біологічні види.
     2. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила утворення та вживання різноманітних дієприкметникових конструкцій.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати різні дієприкметникові конструкції в усному та писемному

мовленні різних стилів;

* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
* пояснювати та обговорювати будову клітини.
* складати план тексту;
* здійснювати письмовий та усний переклад текстів наукового стилю з англійської мови на українську та з української на англійську.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова****:* cell, the cell theory, stable condition, cytoplasm, nucleus, a thin cell membrane, nerve, muscle, bone, blood tissues surface, complex enzyme*.*

* + 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*Describe the cell structure.*

* + 1. Мотивація навчальної діяльності.

*What types of cells are there? What are their characteristics?*

## Зміст основної частини заняття (перелік практичних завдань):

* + 1. **Translate into Ukrainian paying attention on Participle Construction:**

1. The chemists have developed new polymers, some of them having a high degree of strength.
2. The conversation was interesting, many students taking part in it.
3. Medium temperature between 200° and 250°С having been maintained, a

new artificial substance was obtained.

1. In the cells there is often division of labour, particular cells being more concerned with some life functions than with others.
2. Already about 350,000 different kinds of plants have been studied and

named new kinds being discovered each year.

1. The temperature of the tissue rising dangerously, water will evaporate through the mesophill cells.
2. Conifers being beautiful trees, many people like to have them around their houses to decorate the landscape.
3. The botany-zoology system grew up naturally as biological science developed, the emphasis during its early years being placed on structure and relationships.

## Translate the following sentences into Ukrainian and substitute the Absolute Participle Construction by clauses and vice versa.

a)

1. The temperature and air conditions being favourable, the plant begins to

grow.

1. The supply of food provided by wild plants and animals having become

insufficient, primitive man began to grow plants.

1. Good storage conditions having been provided, the seeds retained their good quality and viability.

b)

1. After more favourable conditions had been created, the plants grew to a greater size.
2. Nowadays people know a great number of plant species and the best known among them are the most useful to man.
3. As the day was warm we decided to plant some fruit trees.

## Read and translate the following text; say what new information you got from it:

**Cell components**

Extensive knowledge of the cell and its parts has been gained from the highly developed techniques of microscopy and cell chemistry. The cell is bounded by a cell

membrane and may also be bounded by a cell wall. All living components within this cell membrane are often referred to as the protoplasm. The protoplasm includes a nucleus and a mass of substance surrounding it, the cytoplasm. The cytoplasm may contain small differentiated areas or small organs known as organelles and non-living material, such as excretory products or reserve food. The cell, these organelles, and the nucleus are membrane bound. The membranes are usually composed of associated layers of lipid and protein. They are important not only as boundaries of the cell and cell components but also as surfaces on which metabolic reactions take place.

## Translate the text in writing:

The nucleus is a fairly large, generally spherical body located more or less centrally in the cell. It stains in a distinctive manner and includes one or more dense, heavily staining bodies, the nucleoli. The nucleus is the controlling center of the cell. An enucleated cell, or a cell fragment without a nucleus, can carry on some of its functions for a short period, but its ability to grow is limited and reproduction can not occur.

On the other hand, fragments containing nucleus may grow and may eventually

divide. Correlation of observations on inheritance with details of cell structure shows clearly that, with a few exceptions, the factors that control heredity are located in the chromosomes, which lie in the nucleus and make up most of its bulk. The chief component of these hereditary factors, the genes, appears to be DNA. To a great extent DNA controls cell growth and cell function. RNA performs a function outside the nucleus related to the nuclear activity of the chromosomal DNA.

## Read the following text and try to retell it word for word:

The living substance of plants and animals is organized into protoplasm. Protoplasm is the basic material of all living systems and its general properties are fundamentally the same in each system, plant or animal. It does, however, differ somehow from one plant species to another, from one animal species to another. Protoplasm has a complex physicochemical structure. Common analytical procedures cause the death of protoplasm and thus bring about instantaneous changes in its structure. Nevertheless, a reasonably informative, picture of protoplasm is now available.

## Translate the text into English:

Вивчення складових частин клітин і протоплазми було започатковано після винаходу мікроскопу. Під мікроскопом вчені побачили маленькі комірки, які були названі клітинами. Пізніше було виявлено протоплазму. Всі основні життєві функції організму поміщені у протоплазмі. Вона складається з ядра, оточеного речовиною, названою цитоплазмою. Хімічний склад протоплазми складний, вчені довго не могли її вивчити. Коли вчені починають досліджувати її, вона міняє свою структуру і вмирає. Але дослідження тривають, і в даний час уже дуже багато відомо про властивості, структуру та склад протоплазми.

## Read and translate the text into Ukrainian and then back into English, compare your version with the original:

The phenomena of life are associated with a particular substance called protoplasm, which has definite and specific characteristics. Physically, protoplasm is a grayish jelly-like substance. Its consistency varies with different internal and external conditions from a fluid to a firm jelly. Protoplasm is found within the cells of living organisms. They are the smallest microscopic structural units of fife. Chemically it is a complex mixture of many different combinations of elements. Analysis of the protoplasm of different kinds of organisms shows that thirty-four elements may enter into its composition.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the main points of all the text of the lesson and write a short report about it.*

1. Оголошення завдання для самостійної роботи.

## Get ready for the following imaginary situations:

* 1. *Your friend declares that protoplasm is the most important substance in living things. Your point of view is that it is the nucleus that carries life functions. Try to prove it.*
  2. *Your friend asks you whether protoplasm is an element, a compound or a mixture. Give your explanation.*
  3. *We have examined the chemical composition of protoplasm. Now we are to make account of our work at a conference.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 16

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.

**Тема заняття:** Захист навколишнього середовища.

## Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила утворення та вживання складних складнопідрядних речень.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати різні типи складних складнопідрядних речень в усному та писемному мовленні різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
* пояснювати та обговорювати різні теорії виникнення життя.
* складати план тексту;
* здійснювати письмовий та усний переклад текстів наукового стилю з англійської мови на українську та з української на англійську.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова****:* metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is the essence of life?*

* 1. Мотивація навчальної діяльності.

*What life theories are there?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Answer the following questions**

1. How do you understand the meaning of the word “Life”?
2. How do you think it can be interpreted by the following disciplines: philosophy, theology, biology?
3. Try to develop your own definition of this notion.

## Read to the following words and practice their pronunciation

Metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure, sophisticated.

## Match each word on the left to its correct definition on the right

1. an idea, method, or quality that is typical of a particular person or

thing;

1. to let a substance or energy flow out;
2. a group of animals or plants whose members are similar and can breed together to produce young animals or plants;
3. a quality or power that a substance, plant etc has;
4. to continue to live in spite of difficulties;
5. to become or make something more suitable for a particular purpose;
6. the importance of an event, action etc, especially because of the effects or influence it will have in the future;
7. a small part or amount of something that is examined in order to find out something about the whole;
8. to suggest that something is true, without saying this directly;
9. the place or situation in which something begins to exist.
10. adjust, v
11. hallmark, n
12. imply, v
13. origin, n
14. property, n
15. release, v
16. sample, n
17. significance, n
18. species, n
19. survive, v
    1. **Read the following text paying attention to the highlighted words. Explain or interpret the contextual meaning of the underlined phrases**

Although a great deal is known about life, defining life turns out to be more difficult than one might suppose. There is no simple description that sets living

organisms apart from nonliving matter. The most generally accepted definition of life describes it as the state of a material complex or individual characterized by the capacity to perform certain functional activities, including ***metabolism, growth, reproduction***,

and some form of ***responsiveness*** and ***adaptation***. Life is further characterized by the presence of complex transformations of organic molecules and by the organization of such molecules into the successively larger units of protoplasm, cells, organs, and organisms.

**Metabolism** is the most obvious hallmark of life. Every organism carries out chemical reactions that release energy. The metabolism of an organism is the sum of all the chemical reactions it performs. Some organisms obtain their energy by taking up complex chemical substances (foods) from their environment and metabolizing these substances to release energy and to make chemical building blocks from which other substances may be made. Such organisms are called ***heterotrophs*** (other-feeders). The remaining species are ***autotrophs*** (self-feeders) and obtain their energy either from sunlight or, in a few cases, by taking up very simple mineral substances (but not foods) and carrying on energy-releasing metabolism based on changes in those substances. Modern-day heterotrophs obtain their energy directly or indirectly from the autotrophs.

**Growth and reproduction** are always associated with life. ***Unicellular***

***organisms*** grow to a certain size and then divide. Some more complex organisms bud off small portions of their bodies to form new individuals. Most large organisms reproduce by means of special ***cells*** produced specifically for that purpose. The key is that these reproductive portions, however small, contain the information necessary to form an entire new individual.

**Heredity and mutability** are also essential features of life. When living things reproduce, they often produce ***offspring*** that are *not* exact copies of themselves. The difference between parents and offspring can, in turn, be transmitted to the next generation, usually with additional changes. It is this property of reproducing with changes that makes possible the evolution of life and gives life one of its most distinctive features: adaptation. When we say that organisms are adapted to their ***environments***, we mean that they have characteristics that enable them to survive and reproduce in those environments. It has long been evident that living organisms are adjusted to their environments in remarkably subtle ways, but people found it difficult to develop scientifically rigorous ways to study how organisms had become adapted. Biology could not and did not become a sophisticated science until scientific methods could be applied to the study of adaptation. This did not occur until a little over a century ago, when Charles Darwin proposed the first scientifically testable theory about adaptation.

**Adaptation** is a uniquely biological notion. It does not make sense to ask what the function of the law of gravity is or what the adaptive significance of the relationships among temperature, pressure, and volume of a sample of a gas is. These are features of the nonliving world that we simply take as given, and the explanations of them are sought in purely mechanistic terms. However, in biology we do ask questions about function — for example, “What do wings do?” All studies of wings, even purely descriptive ones, are strongly influenced by thoughts about function. It is, in fact, difficult to describe a wing without referring to its function. Structure in biology is strongly linked to function, and biologists look at differences in structure to find out how they affect functioning.

Another specific feature of life lies in the fact that all the organisms on Earth are

extremely closely related, despite superficial differences. The fundamental ground pattern, both in form and in matter, of all life on Earth is essentially identical. This

identity probably implies that all organisms on Earth are evolved from a single instance of the origin of life.

## Study the phrases below and match two halves of the sentences that follow

*turn out – виявитись, виявлятись*

*set something apart from something – відокремлювати сarry out – здійснювати*

*by means of – за допомогою*

*adapt/adjust to – пристосовуватись до*

|  |  |
| --- | --- |
| 1. Many of Lamarck's examples, such as | a) …out to be deleterious and often |
| the long neck of the giraffe, can be more | lead to some impairment or to death of |
| satisfactorily explained… | the organism. |
| 2. Many other organisms adapt… | b) …out unique functions. |
| 3. Most mutations, however, turn… | c) …by means of natural selection. |
| 4. A three-domain system, however, | d) …apart from prokaryotes and |
| accounts for the differences that set the | eukaryotes. |
| archaea… | e) …to seasonal temperature changes |
| 5. Each membrane structure has its own | by producing dormant forms, such as |
| distinct composition of proteins and | spores or eggs, to survive the low |
| lipids enabling it to carry… | temperatures. |

## Answer the following questions about the text “Life”

1. What is the main problem of defining life?
2. What functional characteristics differentiate living things from non-living ones?
3. Why is metabolism important for living beings?
4. What is the difference between heterotrophs and autotrophs?
5. What reproduction patterns are mentioned in the text?
6. What is the role of mutability for living organisms?
7. What is adaptation?
8. How is structure related to function in biology?
9. What arguments can be presented to support the idea of common origin for all living beings on earth?

## Find the following words in the text “Life” and explain their meanings. Then

**select the synonyms of these words from the list below.**

essential, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_;

entire, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_;

occur, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; obtain, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; rigorous, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; evident, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; perform, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_.

*Whole; acquire; complete; exact; important; necessary; accomplish; take place; happen; thorough; clear; gain; carry out; obvious.*

GRAMMAR IN USE: *Emphatic Structures*

## Look at the following sentences. What is special about their structure?

1. It is this property of reproducing with changes that makes possible the evolution of life.
2. This did not occur until a little over a century ago, when Charles Darwin proposed the first scientifically testable theory about adaptation.
3. However, in biology we do ask questions about function.
4. Not until the late 1920s and the early '30s was the full significance of Mendel’s works

realized.

## 9. Paraphrase the following sentences as required making them emphatic

***Example:*** *Life on this planet originated in water.* ***(It was)*** *-> It was in water where life originated on this planet.*

1. It became possible to study unicellular organisms after the invention of microscope.

## (Only after)

1. The specific carrier of the genetic information in higher organisms is deoxyribonucleic acid. **(It is)**
2. The genetic code was broken only in the 1960s. **(It was not)**
3. Artists began to paint horses correctly only after the invention of camera. **(Not until)**
4. Scientists didn’t know much about the true mechanism of blood circulation before the

17th century. **(Little)**

1. Mendel’s work on heredity was recognized only in 1900. **(It was)**
2. The English chemist Joseph Priestley demonstrated that growing plants “restore” air

from which the oxygen has been removed. **(It was)**

1. Water is interesting chemically and it is one of the most biologically important substances. **(Not only)**
2. Scientists do not often have an opportunity to observe this phenomenon. **(Rarely)**

## Explain the meaning of the words

Excrete, revive, host animal, alter, clement conditions, emphasis, oxidation state, proteinaceous catalysts, to confer benefits, sulfur, enzymes, random processes, boundary, counterexample, complexity, to remain dormant, virus-like

## Read four different definitions of life (A, B, C, D). Choose the best summary for each of the definitions.

**A**

For many years **a physiological definition** of life was popular. Life was defined as any system capable of performing a number of such functions as eating, metabolizing, excreting, breathing, moving, growing, reproducing, and being responsive to external stimuli. But many such properties are either present in machines that nobody is willing to call alive, or absent from organisms that everybody is willing to call alive. An automobile, for example, can be said to eat, metabolize, excrete, breathe, move, and be responsive to external stimuli. On the other hand, some bacteria do not breathe at all but instead live out their days by altering the oxidation state of sulfur.

1. The physiological definition is inconsistent because automobiles can “breathe”, “eat”, “excrete”, etc. similarly to living things.
2. The physiological definition has certain drawbacks because some non-living objects (e.g. machines) can “perform” functions similar to those of living beings whereas some living organisms such as certain bacteria do not carry out all processes of life (e.g. breathing).
3. The physiological definition is incorrect because some bacteria don’t breathe.

## B

**The metabolic definition** is still popular with many biologists. It describes a living system as an object with a definite boundary, continually exchanging some of its materials with its surroundings, but without altering its general properties, at least over some period of time. But again there are exceptions. There are seeds and spores that remain, so far as is known, perfectly dormant and totally without metabolic activity at low temperatures for hundreds, perhaps thousands, of years but that can revive perfectly well upon being subjected to more clement conditions.

1. The metabolic definition emphasizes the ability of living organisms to exchange substances and energy with their external environments while preserving their basic characteristics.
2. According to the metabolic definition seeds and spores are not alive because they remain dormant for hundreds of years without any visible metabolism.
3. There are exceptions to the metabolic definition because some living organisms are inclined to change their inner structure and properties during their life cycles.

## C

**A biochemical or molecular biological definition** sees living organisms as systems that contain reproducible hereditary information coded in nucleic acid molecules and that metabolize by controlling the rate of chemical reactions using proteinaceous catalysts known as enzymes. In many respects, this is more satisfying than the physiological or metabolic definitions of life. There are, however, even here, the hints of counterexamples. There seems to be some evidence that a virus-like agent called scrapie contains no nucleic acids at all, although it has been hypothesized that the nucleic acids of the host animal may nevertheless be involved in the reproduction of scrapie.

1. The biochemical definition is inconsistent because viruses cannot reproduce.
2. Modern scientists agree that the biochemical definition is better than other theories and there are virtually no arguments against it.
3. The biochemical definition of life places an emphasis on the fact that all living organisms contain hereditary information in the form of certain biochemical structures such as nucleic acids.

## D

A **genetic definition** of life describes it as a system capable of evolution by natural selection. This definition places great emphasis on the importance of replication. Indeed, in any organism enormous biological effort is directed toward replication, although it confers no obvious benefit on the replicating organism. Some organisms, many hybrids for example, do not replicate at all. But their individual cells do. The genetic definition has the additional advantage of being expressed purely in functional terms: it does not depend on any particular choice of constituent molecules. The improbability of contemporary organisms is so great that these organisms could not

possibly have arisen by purely random processes and without historical continuity. Fundamental to the genetic definition of life then is the belief that a certain level of complexity cannot be achieved without natural selection.

1. The genetic definition relies on such characteristics of living organisms as replication and evolution.
2. The genetic definition concludes that since a replicating organism has no obvious benefits from replication some living beings (e.g. hybrids) do not replicate.
3. According to the genetic definition it is improbable that a variety of modern living forms might have evolved from one common ancestor.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the main points of all the text of the lesson and explaine the following: metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure*

1. Оголошення завдання для самостійної роботи.

## Be ready to speak about Life covering the following issues:

1. *The variety of approaches to the problem of life: the physiological, metabolic, biochemical, and genetic definitions of life.*
2. *Metabolism, growth, reproduction, responsiveness, and adaptation as the main functional activities performed by living organisms.*
3. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 17

**І. Організаційна частина.**

Повідомлення теми, мети заняття.

**Тема заняття:** Глобальне потепління.

## Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила утворення та вживання складних складнопідрядних речень.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати різні типи складних складнопідрядних речень в усному та писемному мовленні різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
* пояснювати та обговорювати різні теорії виникнення життя.
* складати план тексту;
* здійснювати письмовий та усний переклад текстів наукового стилю з англійської мови на українську та з української на англійську.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова****:* metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is the essence of life?*

* 1. Мотивація навчальної діяльності.

*What life theories are there?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Answer the following questions**

1. How do you understand the meaning of the word “Life”?
2. How do you think it can be interpreted by the following disciplines: philosophy, theology, biology?
3. Try to develop your own definition of this notion.

## Read to the following words and practice their pronunciation

Metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure, sophisticated.

## Match each word on the left to its correct definition on the right

1. an idea, method, or quality that is typical of a particular person or

thing;

1. to let a substance or energy flow out;
2. a group of animals or plants whose members are similar and can breed together to produce young animals or plants;
3. a quality or power that a substance, plant etc has;
4. to continue to live in spite of difficulties;
5. to become or make something more suitable for a particular purpose;
6. the importance of an event, action etc, especially because of the effects or influence it will have in the future;
7. a small part or amount of something that is examined in order to find out something about the whole;
8. to suggest that something is true, without saying this directly;
9. the place or situation in which something begins to exist.
10. adjust, v
11. hallmark, n
12. imply, v
13. origin, n
14. property, n
15. release, v
16. sample, n
17. significance, n
18. species, n
19. survive, v
    1. **Read the following text paying attention to the highlighted words. Explain or interpret the contextual meaning of the underlined phrases**

Although a great deal is known about life, defining life turns out to be more difficult than one might suppose. There is no simple description that sets living

organisms apart from nonliving matter. The most generally accepted definition of life describes it as the state of a material complex or individual characterized by the capacity to perform certain functional activities, including ***metabolism, growth, reproduction***,

and some form of ***responsiveness*** and ***adaptation***. Life is further characterized by the presence of complex transformations of organic molecules and by the organization of such molecules into the successively larger units of protoplasm, cells, organs, and organisms.

**Metabolism** is the most obvious hallmark of life. Every organism carries out chemical reactions that release energy. The metabolism of an organism is the sum of all the chemical reactions it performs. Some organisms obtain their energy by taking up complex chemical substances (foods) from their environment and metabolizing these substances to release energy and to make chemical building blocks from which other substances may be made. Such organisms are called ***heterotrophs*** (other-feeders). The remaining species are ***autotrophs*** (self-feeders) and obtain their energy either from sunlight or, in a few cases, by taking up very simple mineral substances (but not foods) and carrying on energy-releasing metabolism based on changes in those substances. Modern-day heterotrophs obtain their energy directly or indirectly from the autotrophs.

**Growth and reproduction** are always associated with life. ***Unicellular***

***organisms*** grow to a certain size and then divide. Some more complex organisms bud off small portions of their bodies to form new individuals. Most large organisms reproduce by means of special ***cells*** produced specifically for that purpose. The key is that these reproductive portions, however small, contain the information necessary to form an entire new individual.

**Heredity and mutability** are also essential features of life. When living things reproduce, they often produce ***offspring*** that are *not* exact copies of themselves. The difference between parents and offspring can, in turn, be transmitted to the next generation, usually with additional changes. It is this property of reproducing with changes that makes possible the evolution of life and gives life one of its most distinctive features: adaptation. When we say that organisms are adapted to their ***environments***, we mean that they have characteristics that enable them to survive and reproduce in those environments. It has long been evident that living organisms are adjusted to their environments in remarkably subtle ways, but people found it difficult to develop scientifically rigorous ways to study how organisms had become adapted. Biology could not and did not become a sophisticated science until scientific methods could be applied to the study of adaptation. This did not occur until a little over a century ago, when Charles Darwin proposed the first scientifically testable theory about adaptation.

**Adaptation** is a uniquely biological notion. It does not make sense to ask what the function of the law of gravity is or what the adaptive significance of the relationships among temperature, pressure, and volume of a sample of a gas is. These are features of the nonliving world that we simply take as given, and the explanations of them are sought in purely mechanistic terms. However, in biology we do ask questions about function — for example, “What do wings do?” All studies of wings, even purely descriptive ones, are strongly influenced by thoughts about function. It is, in fact, difficult to describe a wing without referring to its function. Structure in biology is strongly linked to function, and biologists look at differences in structure to find out how they affect functioning.

Another specific feature of life lies in the fact that all the organisms on Earth are

extremely closely related, despite superficial differences. The fundamental ground pattern, both in form and in matter, of all life on Earth is essentially identical. This

identity probably implies that all organisms on Earth are evolved from a single instance of the origin of life.

## Study the phrases below and match two halves of the sentences that follow

*turn out – виявитись, виявлятись*

*set something apart from something – відокремлювати сarry out – здійснювати*

*by means of – за допомогою*

*adapt/adjust to – пристосовуватись до*

|  |  |
| --- | --- |
| 1. Many of Lamarck's examples, such as | a) …out to be deleterious and often |
| the long neck of the giraffe, can be more | lead to some impairment or to death of |
| satisfactorily explained… | the organism. |
| 2. Many other organisms adapt… | b) …out unique functions. |
| 3. Most mutations, however, turn… | c) …by means of natural selection. |
| 4. A three-domain system, however, | d) …apart from prokaryotes and |
| accounts for the differences that set the | eukaryotes. |
| archaea… | e) …to seasonal temperature changes |
| 5. Each membrane structure has its own | by producing dormant forms, such as |
| distinct composition of proteins and | spores or eggs, to survive the low |
| lipids enabling it to carry… | temperatures. |

## Answer the following questions about the text “Life”

1. What is the main problem of defining life?
2. What functional characteristics differentiate living things from non-living ones?
3. Why is metabolism important for living beings?
4. What is the difference between heterotrophs and autotrophs?
5. What reproduction patterns are mentioned in the text?
6. What is the role of mutability for living organisms?
7. What is adaptation?
8. How is structure related to function in biology?
9. What arguments can be presented to support the idea of common origin for all living beings on earth?

## Find the following words in the text “Life” and explain their meanings. Then

**select the synonyms of these words from the list below.**

essential, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_;

entire, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_;

occur, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; obtain, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; rigorous, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; evident, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; perform, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_.

*Whole; acquire; complete; exact; important; necessary; accomplish; take place; happen; thorough; clear; gain; carry out; obvious.*

GRAMMAR IN USE: *Emphatic Structures*

## Look at the following sentences. What is special about their structure?

1. It is this property of reproducing with changes that makes possible the evolution of life.
2. This did not occur until a little over a century ago, when Charles Darwin proposed the first scientifically testable theory about adaptation.
3. However, in biology we do ask questions about function.
4. Not until the late 1920s and the early '30s was the full significance of Mendel’s works

realized.

## 9. Paraphrase the following sentences as required making them emphatic

***Example:*** *Life on this planet originated in water.* ***(It was)*** *-> It was in water where life originated on this planet.*

1. It became possible to study unicellular organisms after the invention of microscope.

## (Only after)

1. The specific carrier of the genetic information in higher organisms is deoxyribonucleic acid. **(It is)**
2. The genetic code was broken only in the 1960s. **(It was not)**
3. Artists began to paint horses correctly only after the invention of camera. **(Not until)**
4. Scientists didn’t know much about the true mechanism of blood circulation before the

17th century. **(Little)**

1. Mendel’s work on heredity was recognized only in 1900. **(It was)**
2. The English chemist Joseph Priestley demonstrated that growing plants “restore” air

from which the oxygen has been removed. **(It was)**

1. Water is interesting chemically and it is one of the most biologically important substances. **(Not only)**
2. Scientists do not often have an opportunity to observe this phenomenon. **(Rarely)**

## Explain the meaning of the words

Excrete, revive, host animal, alter, clement conditions, emphasis, oxidation state, proteinaceous catalysts, to confer benefits, sulfur, enzymes, random processes, boundary, counterexample, complexity, to remain dormant, virus-like

## Read four different definitions of life (A, B, C, D). Choose the best summary for each of the definitions.

**A**

For many years **a physiological definition** of life was popular. Life was defined as any system capable of performing a number of such functions as eating, metabolizing, excreting, breathing, moving, growing, reproducing, and being responsive to external stimuli. But many such properties are either present in machines that nobody is willing to call alive, or absent from organisms that everybody is willing to call alive. An automobile, for example, can be said to eat, metabolize, excrete, breathe, move, and be responsive to external stimuli. On the other hand, some bacteria do not breathe at all but instead live out their days by altering the oxidation state of sulfur.

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## B

**The metabolic definition** is still popular with many biologists. It describes a living system as an object with a definite boundary, continually exchanging some of its materials with its surroundings, but without altering its general properties, at least over some period of time. But again there are exceptions. There are seeds and spores that remain, so far as is known, perfectly dormant and totally without metabolic activity at low temperatures for hundreds, perhaps thousands, of years but that can revive perfectly well upon being subjected to more clement conditions.

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## C

**A biochemical or molecular biological definition** sees living organisms as systems that contain reproducible hereditary information coded in nucleic acid molecules and that metabolize by controlling the rate of chemical reactions using proteinaceous catalysts known as enzymes. In many respects, this is more satisfying than the physiological or metabolic definitions of life. There are, however, even here, the hints of counterexamples. There seems to be some evidence that a virus-like agent called scrapie contains no nucleic acids at all, although it has been hypothesized that the nucleic acids of the host animal may nevertheless be involved in the reproduction of scrapie.

1. The biochemical definition is inconsistent because viruses cannot reproduce.
2. Modern scientists agree that the biochemical definition is better than other theories and there are virtually no arguments against it.
3. The biochemical definition of life places an emphasis on the fact that all living organisms contain hereditary information in the form of certain biochemical structures such as nucleic acids.

## D

A **genetic definition** of life describes it as a system capable of evolution by natural selection. This definition places great emphasis on the importance of replication. Indeed, in any organism enormous biological effort is directed toward replication, although it confers no obvious benefit on the replicating organism. Some organisms, many hybrids for example, do not replicate at all. But their individual cells do. The genetic definition has the additional advantage of being expressed purely in functional terms: it does not depend on any particular choice of constituent molecules. The improbability of contemporary organisms is so great that these organisms could not

possibly have arisen by purely random processes and without historical continuity. Fundamental to the genetic definition of life then is the belief that a certain level of complexity cannot be achieved without natural selection.

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3. According to the genetic definition it is improbable that a variety of modern living forms might have evolved from one common ancestor.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the main points of all the text of the lesson and explaine the following: metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure*

1. Оголошення завдання для самостійної роботи.

## Be ready to speak about Life covering the following issues:

1. *The variety of approaches to the problem of life: the physiological, metabolic, biochemical, and genetic definitions of life.*
2. *Metabolism, growth, reproduction, responsiveness, and adaptation as the main functional activities performed by living organisms.*
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## ПРАКТИЧНЕ ЗАНЯТТЯ 18-19

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.

**Тема заняття:** Організми та їх навколишнє середовище.

## Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила утворення та вживання складних складнопідрядних речень.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати різні типи складних складнопідрядних речень в усному та писемному мовленні різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
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* пояснювати та обговорювати різні теорії виникнення життя.
* складати план тексту;
* здійснювати письмовий та усний переклад текстів наукового стилю з англійської мови на українську та з української на англійську.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова****:* metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is the essence of life?*

* 1. Мотивація навчальної діяльності.

*What life theories are there?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Answer the following questions**

1. How do you understand the meaning of the word “Life”?
2. How do you think it can be interpreted by the following disciplines: philosophy, theology, biology?
3. Try to develop your own definition of this notion.

## Read to the following words and practice their pronunciation

Metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure, sophisticated.

## Match each word on the left to its correct definition on the right

1. an idea, method, or quality that is typical of a particular person or

thing;

1. to let a substance or energy flow out;
2. a group of animals or plants whose members are similar and can breed together to produce young animals or plants;
3. a quality or power that a substance, plant etc has;
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7. a small part or amount of something that is examined in order to find out something about the whole;
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9. the place or situation in which something begins to exist.
10. adjust, v
11. hallmark, n
12. imply, v
13. origin, n
14. property, n
15. release, v
16. sample, n
17. significance, n
18. species, n
19. survive, v
    1. **Read the following text paying attention to the highlighted words. Explain or interpret the contextual meaning of the underlined phrases**

Although a great deal is known about life, defining life turns out to be more difficult than one might suppose. There is no simple description that sets living

organisms apart from nonliving matter. The most generally accepted definition of life describes it as the state of a material complex or individual characterized by the capacity to perform certain functional activities, including ***metabolism, growth, reproduction***,

and some form of ***responsiveness*** and ***adaptation***. Life is further characterized by the presence of complex transformations of organic molecules and by the organization of such molecules into the successively larger units of protoplasm, cells, organs, and organisms.

**Metabolism** is the most obvious hallmark of life. Every organism carries out chemical reactions that release energy. The metabolism of an organism is the sum of all the chemical reactions it performs. Some organisms obtain their energy by taking up complex chemical substances (foods) from their environment and metabolizing these substances to release energy and to make chemical building blocks from which other substances may be made. Such organisms are called ***heterotrophs*** (other-feeders). The remaining species are ***autotrophs*** (self-feeders) and obtain their energy either from sunlight or, in a few cases, by taking up very simple mineral substances (but not foods) and carrying on energy-releasing metabolism based on changes in those substances. Modern-day heterotrophs obtain their energy directly or indirectly from the autotrophs.

**Growth and reproduction** are always associated with life. ***Unicellular***

***organisms*** grow to a certain size and then divide. Some more complex organisms bud off small portions of their bodies to form new individuals. Most large organisms reproduce by means of special ***cells*** produced specifically for that purpose. The key is that these reproductive portions, however small, contain the information necessary to form an entire new individual.

**Heredity and mutability** are also essential features of life. When living things reproduce, they often produce ***offspring*** that are *not* exact copies of themselves. The difference between parents and offspring can, in turn, be transmitted to the next generation, usually with additional changes. It is this property of reproducing with changes that makes possible the evolution of life and gives life one of its most distinctive features: adaptation. When we say that organisms are adapted to their ***environments***, we mean that they have characteristics that enable them to survive and reproduce in those environments. It has long been evident that living organisms are adjusted to their environments in remarkably subtle ways, but people found it difficult to develop scientifically rigorous ways to study how organisms had become adapted. Biology could not and did not become a sophisticated science until scientific methods could be applied to the study of adaptation. This did not occur until a little over a century ago, when Charles Darwin proposed the first scientifically testable theory about adaptation.

**Adaptation** is a uniquely biological notion. It does not make sense to ask what the function of the law of gravity is or what the adaptive significance of the relationships among temperature, pressure, and volume of a sample of a gas is. These are features of the nonliving world that we simply take as given, and the explanations of them are sought in purely mechanistic terms. However, in biology we do ask questions about function — for example, “What do wings do?” All studies of wings, even purely descriptive ones, are strongly influenced by thoughts about function. It is, in fact, difficult to describe a wing without referring to its function. Structure in biology is strongly linked to function, and biologists look at differences in structure to find out how they affect functioning.

Another specific feature of life lies in the fact that all the organisms on Earth are

extremely closely related, despite superficial differences. The fundamental ground pattern, both in form and in matter, of all life on Earth is essentially identical. This

identity probably implies that all organisms on Earth are evolved from a single instance of the origin of life.

## Study the phrases below and match two halves of the sentences that follow

*turn out – виявитись, виявлятись*

*set something apart from something – відокремлювати сarry out – здійснювати*

*by means of – за допомогою*

*adapt/adjust to – пристосовуватись до*

|  |  |
| --- | --- |
| 1. Many of Lamarck's examples, such as | a) …out to be deleterious and often |
| the long neck of the giraffe, can be more | lead to some impairment or to death of |
| satisfactorily explained… | the organism. |
| 2. Many other organisms adapt… | b) …out unique functions. |
| 3. Most mutations, however, turn… | c) …by means of natural selection. |
| 4. A three-domain system, however, | d) …apart from prokaryotes and |
| accounts for the differences that set the | eukaryotes. |
| archaea… | e) …to seasonal temperature changes |
| 5. Each membrane structure has its own | by producing dormant forms, such as |
| distinct composition of proteins and | spores or eggs, to survive the low |
| lipids enabling it to carry… | temperatures. |

## Answer the following questions about the text “Life”

1. What is the main problem of defining life?
2. What functional characteristics differentiate living things from non-living ones?
3. Why is metabolism important for living beings?
4. What is the difference between heterotrophs and autotrophs?
5. What reproduction patterns are mentioned in the text?
6. What is the role of mutability for living organisms?
7. What is adaptation?
8. How is structure related to function in biology?
9. What arguments can be presented to support the idea of common origin for all living beings on earth?

## Find the following words in the text “Life” and explain their meanings. Then

**select the synonyms of these words from the list below.**

essential, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_;

entire, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_;

occur, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; obtain, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; rigorous, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; evident, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_; perform, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_.

*Whole; acquire; complete; exact; important; necessary; accomplish; take place; happen; thorough; clear; gain; carry out; obvious.*

GRAMMAR IN USE: *Emphatic Structures*

## Look at the following sentences. What is special about their structure?

1. It is this property of reproducing with changes that makes possible the evolution of life.
2. This did not occur until a little over a century ago, when Charles Darwin proposed the first scientifically testable theory about adaptation.
3. However, in biology we do ask questions about function.
4. Not until the late 1920s and the early '30s was the full significance of Mendel’s works

realized.

## 9. Paraphrase the following sentences as required making them emphatic

***Example:*** *Life on this planet originated in water.* ***(It was)*** *-> It was in water where life originated on this planet.*

1. It became possible to study unicellular organisms after the invention of microscope.

## (Only after)

1. The specific carrier of the genetic information in higher organisms is deoxyribonucleic acid. **(It is)**
2. The genetic code was broken only in the 1960s. **(It was not)**
3. Artists began to paint horses correctly only after the invention of camera. **(Not until)**
4. Scientists didn’t know much about the true mechanism of blood circulation before the

17th century. **(Little)**

1. Mendel’s work on heredity was recognized only in 1900. **(It was)**
2. The English chemist Joseph Priestley demonstrated that growing plants “restore” air

from which the oxygen has been removed. **(It was)**

1. Water is interesting chemically and it is one of the most biologically important substances. **(Not only)**
2. Scientists do not often have an opportunity to observe this phenomenon. **(Rarely)**

## Explain the meaning of the words

Excrete, revive, host animal, alter, clement conditions, emphasis, oxidation state, proteinaceous catalysts, to confer benefits, sulfur, enzymes, random processes, boundary, counterexample, complexity, to remain dormant, virus-like

## Read four different definitions of life (A, B, C, D). Choose the best summary for each of the definitions.

**A**

For many years **a physiological definition** of life was popular. Life was defined as any system capable of performing a number of such functions as eating, metabolizing, excreting, breathing, moving, growing, reproducing, and being responsive to external stimuli. But many such properties are either present in machines that nobody is willing to call alive, or absent from organisms that everybody is willing to call alive. An automobile, for example, can be said to eat, metabolize, excrete, breathe, move, and be responsive to external stimuli. On the other hand, some bacteria do not breathe at all but instead live out their days by altering the oxidation state of sulfur.

1. The physiological definition is inconsistent because automobiles can “breathe”, “eat”, “excrete”, etc. similarly to living things.
2. The physiological definition has certain drawbacks because some non-living objects (e.g. machines) can “perform” functions similar to those of living beings whereas some living organisms such as certain bacteria do not carry out all processes of life (e.g. breathing).
3. The physiological definition is incorrect because some bacteria don’t breathe.

## B

**The metabolic definition** is still popular with many biologists. It describes a living system as an object with a definite boundary, continually exchanging some of its materials with its surroundings, but without altering its general properties, at least over some period of time. But again there are exceptions. There are seeds and spores that remain, so far as is known, perfectly dormant and totally without metabolic activity at low temperatures for hundreds, perhaps thousands, of years but that can revive perfectly well upon being subjected to more clement conditions.

1. The metabolic definition emphasizes the ability of living organisms to exchange substances and energy with their external environments while preserving their basic characteristics.
2. According to the metabolic definition seeds and spores are not alive because they remain dormant for hundreds of years without any visible metabolism.
3. There are exceptions to the metabolic definition because some living organisms are inclined to change their inner structure and properties during their life cycles.

## C

**A biochemical or molecular biological definition** sees living organisms as systems that contain reproducible hereditary information coded in nucleic acid molecules and that metabolize by controlling the rate of chemical reactions using proteinaceous catalysts known as enzymes. In many respects, this is more satisfying than the physiological or metabolic definitions of life. There are, however, even here, the hints of counterexamples. There seems to be some evidence that a virus-like agent called scrapie contains no nucleic acids at all, although it has been hypothesized that the nucleic acids of the host animal may nevertheless be involved in the reproduction of scrapie.

1. The biochemical definition is inconsistent because viruses cannot reproduce.
2. Modern scientists agree that the biochemical definition is better than other theories and there are virtually no arguments against it.
3. The biochemical definition of life places an emphasis on the fact that all living organisms contain hereditary information in the form of certain biochemical structures such as nucleic acids.

## D

A **genetic definition** of life describes it as a system capable of evolution by natural selection. This definition places great emphasis on the importance of replication. Indeed, in any organism enormous biological effort is directed toward replication, although it confers no obvious benefit on the replicating organism. Some organisms, many hybrids for example, do not replicate at all. But their individual cells do. The genetic definition has the additional advantage of being expressed purely in functional terms: it does not depend on any particular choice of constituent molecules. The improbability of contemporary organisms is so great that these organisms could not

## ПРАКТИЧНЕ ЗАНЯТТЯ 20

**Організаційна частина.**

Повідомлення теми, мети заняття.

**Тема заняття:** Екосистеми.

Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила утворення та вживання складних складнопідрядних речень.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати різні типи складних складнопідрядних речень в усному та писемному мовленні різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
* пояснювати та обговорювати різні теорії виникнення життя.
* складати план тексту;
* здійснювати письмовий та усний переклад текстів наукового стилю з англійської мови на українську та з української на англійську.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова****:* metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is the essence of life?*

* 1. Мотивація навчальної діяльності.

*What life theories are there?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Answer the following questions**

1. How do you understand the meaning of the word “Life”?
2. How do you think it can be interpreted by the following disciplines: philosophy, theology, biology?
3. Try to develop your own definition of this notion.

## Read to the following words and practice their pronunciation

Metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure, sophisticated.

## Match each word on the left to its correct definition on the right

1. an idea, method, or quality that is typical of a particular person or

thing;

1. to let a substance or energy flow out;
2. a group of animals or plants whose members are similar and can breed together to produce young animals or plants;
3. a quality or power that a substance, plant etc has;
4. to continue to live in spite of difficulties;
5. to become or make something more suitable for a particular purpose;
6. the importance of an event, action etc, especially because of the effects or influence it will have in the future;
7. a small part or amount of something that is examined in order to find out something about the whole;
8. to suggest that something is true, without saying this directly;
9. the place or situation in which something begins to exist.
10. adjust, v
11. hallmark, n
12. imply, v
13. origin, n
14. property, n
15. release, v
16. sample, n
17. significance, n
18. species, n
19. survive, v
    1. **Read the following text paying attention to the highlighted words. Explain or interpret the contextual meaning of the underlined phrases**

Although a great deal is known about life, defining life turns out to be more difficult than one might suppose. There is no simple description that sets living

organisms apart from nonliving matter. The most generally accepted definition of life describes it as the state of a material complex or individual characterized by the capacity to perform certain functional activities, including ***metabolism, growth, reproduction***,

and some form of ***responsiveness*** and ***adaptation***. Life is further characterized by the presence of complex transformations of organic molecules and by the organization of such molecules into the successively larger units of protoplasm, cells, organs, and organisms.

**Metabolism** is the most obvious hallmark of life. Every organism carries out chemical reactions that release energy. The metabolism of an organism is the sum of all the chemical reactions it performs. Some organisms obtain their energy by taking up complex chemical substances (foods) from their environment and metabolizing these substances to release energy and to make chemical building blocks from which other substances may be made. Such organisms are called ***heterotrophs*** (other-feeders). The remaining species are ***autotrophs*** (self-feeders) and obtain their energy either from sunlight or, in a few cases, by taking up very simple mineral substances (but not foods) and carrying on energy-releasing metabolism based on changes in those substances. Modern-day heterotrophs obtain their energy directly or indirectly from the autotrophs.

**Growth and reproduction** are always associated with life. ***Unicellular***

***organisms*** grow to a certain size and then divide. Some more complex organisms bud off small portions of their bodies to form new individuals. Most large organisms reproduce by means of special ***cells*** produced specifically for that purpose. The key is that these reproductive portions, however small, contain the information necessary to form an entire new individual.

**Heredity and mutability** are also essential features of life. When living things reproduce, they often produce ***offspring*** that are *not* exact copies of themselves. The difference between parents and offspring can, in turn, be transmitted to the next generation, usually with additional changes. It is this property of reproducing with changes that makes possible the evolution of life and gives life one of its most distinctive features: adaptation. When we say that organisms are adapted to their ***environments***, we mean that they have characteristics that enable them to survive and reproduce in those environments. It has long been evident that living organisms are adjusted to their environments in remarkably subtle ways, but people found it difficult to develop scientifically rigorous ways to study how organisms had become adapted. Biology could not and did not become a sophisticated science until scientific methods could be applied to the study of adaptation. This did not occur until a little over a century ago, when Charles Darwin proposed the first scientifically testable theory about adaptation.

**Adaptation** is a uniquely biological notion. It does not make sense to ask what the function of the law of gravity is or what the adaptive significance of the relationships among temperature, pressure, and volume of a sample of a gas is. These are features of the nonliving world that we simply take as given, and the explanations of them are sought in purely mechanistic terms. However, in biology we do ask questions about function — for example, “What do wings do?” All studies of wings, even purely descriptive ones, are strongly influenced by thoughts about function. It is, in fact, difficult to describe a wing without referring to its function. Structure in biology is strongly linked to function, and biologists look at differences in structure to find out how they affect functioning.

Another specific feature of life lies in the fact that all the organisms on Earth are

extremely closely related, despite superficial differences. The fundamental ground pattern, both in form and in matter, of all life on Earth is essentially identical. This

identity probably implies that all organisms on Earth are evolved from a single instance of the origin of life.

## Study the phrases below and match two halves of the sentences that follow

*turn out – виявитись, виявлятись*

*set something apart from something – відокремлювати сarry out – здійснювати*

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| 1. Many of Lamarck's examples, such as | a) …out to be deleterious and often |
| the long neck of the giraffe, can be more | lead to some impairment or to death of |
| satisfactorily explained… | the organism. |
| 2. Many other organisms adapt… | b) …out unique functions. |
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| 5. Each membrane structure has its own | by producing dormant forms, such as |
| distinct composition of proteins and | spores or eggs, to survive the low |
| lipids enabling it to carry… | temperatures. |

## Answer the following questions about the text “Life”

What is the main problem of defining life?

What functional characteristics differentiate living things from non-living ones?

Why is metabolism important for living beings?

What is the difference between heterotrophs and autotrophs?

What reproduction patterns are mentioned in the text?

What is the role of mutability for living organisms?

What is adaptation?

How is structure related to function in biology?

What arguments can be presented to support the idea of common origin for all living beings on earth?

## Find the following words in the text “Life” and explain their meanings. Then

**select the synonyms of these words from the list below.**

essential, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_;

entire, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_;

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*Whole; acquire; complete; exact; important; necessary; accomplish; take place; happen; thorough; clear; gain; carry out; obvious.*

## ІІІ. Підбиття підсумків заняття.

Узагальнення та систематизація вивченого.

*Give the main points of all the text of the lesson and explaine the following: metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure*

Оголошення завдання для самостійної роботи.

## Be ready to speak about Life covering the following issues:

*The variety of approaches to the problem of life: the physiological, metabolic, biochemical, and genetic definitions of life.*

*Metabolism, growth, reproduction, responsiveness, and adaptation as the main functional activities performed by living organisms.*

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 21

**Організаційна частина.**

Повідомлення теми, мети заняття.

**Тема заняття:** Біологія і хімія як науки.

Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила утворення та вживання складних складнопідрядних речень.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати різні типи складних складнопідрядних речень в усному та писемному мовленні різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
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## Виховна мета:

* формування навичок виконання дій професійної діяльності;
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***Ключові слова****:* metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is the essence of life?*

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*What life theories are there?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Answer the following questions**

How do you understand the meaning of the word “Life”?

How do you think it can be interpreted by the following disciplines: philosophy, theology, biology?

Try to develop your own definition of this notion.

## Read to the following words and practice their pronunciation

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thing;

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identity probably implies that all organisms on Earth are evolved from a single instance of the origin of life.

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| satisfactorily explained… | the organism. |
| 2. Many other organisms adapt… | b) …out unique functions. |
| 3. Most mutations, however, turn… | c) …by means of natural selection. |
| 4. A three-domain system, however, | d) …apart from prokaryotes and |
| accounts for the differences that set the | eukaryotes. |
| archaea… | e) …to seasonal temperature changes |
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## ІІІ. Підбиття підсумків заняття.

Узагальнення та систематизація вивченого.

*Give the main points of all the text of the lesson and explaine the following: metabolism, growth, reproduction, responsiveness, adaptation, chemical, heterotroph, autotroph, evolution, unicellular, mutability, offspring, generation, environment, unique, pressure*

Оголошення завдання для самостійної роботи.

## Be ready to speak about Life covering the following issues:

*The variety of approaches to the problem of life: the physiological, metabolic, biochemical, and genetic definitions of life.*

*Metabolism, growth, reproduction, responsiveness, and adaptation as the main functional activities performed by living organisms.*

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 22

**Організаційна частина.**

Повідомлення теми, мети заняття.

**Тема заняття:** Клітини

Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила побудови, інтонування та вживання загальних питань в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* вживати та інтонувати питання спеціального типу в різних часових формах в умовно-комунікативних та комунікативних ситуаціях;
* читати текст з загальним зрозумінням прочитаного, із загальним охопленням

змісту, з метою пошуку специфічної інформації;

* пояснювати, обговорювати визначення зоології як підрозділу біології, класифікацію тварин;
* здійснювати усний та письмовий переклад наукового та науково-популярного тексту.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** animal, evolutionary history, taxonomу, segmented worm, snails, slugs, insects, crustaceans.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is the subject matter of Zoology?*

* 1. Мотивація навчальної діяльності.

*What is the role of animals in ecosystem?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read and translate the text:**

**Animali/animals**

All animals are members of the Kingdom Animalia, also called Metazoa. This Kingdom does not contain prokaryotes (Kingdom Monera, includes bacteria, blue-green algae) or protists (Kingdom Protista, includes unicellular eukaryotic organisms). All members of Animalia are multicellular, and all are heterotrophs (that is, they rely directly or indirectly on other organisms for their nourishment). Most ingest food and digest it in an internal cavity.

Animal cells lack the rigid cell walls that characterize plant cells. The bodies of most animals (all except sponges) are made up of cells organized into tissues, each tissue specialized to some degree to perform specific functions. In most, tissues are organized into even more specialized organs. Most animals are capable of complex and relatively rapid movement compared to plants and other organisms. Most reproduce sexually, by means of differentiated eggs and sperm. Most animals are diploid, meaning that the cells of adults contain two copies of the genetic material. The development of most animals is characterized by distinctive stages, including a zygote, formed by the product of the first few division of cells following fertilization; a blastula, which is a hollow ball of cells formed by the developing zygote; and a gastrula, which is formed when the blastula folds in on itself to form a double-walled structure with an opening to the outside, the blastopore.

It is estimated that around 9 or 10 million species of animals inhabit the earth; the exact number is not known and all estimates are rough. Animals range in size from no more than a few cells to organisms weighing many tons, such as blue whales and giant squid. By far most species of animals are insects, with groups such as mollusks, crustaceans, and nematodes also being especially diverse. By this measure our own group, the vertebrates, is relatively inconsequential from a diversity pers pective.

Research continues on the evolutionary relationships of the major groups of animals. For the sake of convenience, the Animal Diversity Web follows the system outlined in Hickman and Roberts (1994). For some groups we incorporate the results of current research in our classification and discussion.

## Read the text and define the main features of traditional system of classification of animals:

### Organismal classification - evolutionary relationships and ranks

The diversity of living organisms on earth is truly astounding, almost overwhelming. Humans have come up with ways of organizing, or **classifying**, biological

diversity throughout human history. Organisms can be classified according to any number of criteria, including overall similarities, colors, ecological functions, etc. However, it is generally agreed that the most useful way for scientists to organize biological diversity is to group organisms according to shared evolutionary history. This way the grouping not only results in an organized classification, it also contains and conveys information about our understanding of the **evolutionary history** of these groups. Although our understanding of evolutionary relationships among organisms has greatly improved in the last century, it is by no means complete. Relationships among organisms, and groups of organisms, continues to be revised as new data becomes available. The rate of such revisions has increased in recent years primarily as a result of the huge amount of new molecular data (such as DNA sequences) that has been brought to bear on tests of evolutionary relationships. This means that nearly all **taxonomies** (systems of nomenclature) based on evolutionary relationships among organisms are being revised, sometimes radically so. Traditional ideas about how organisms are

related, and in which groups they belong, often prove inaccurate.

Traditional, biological classification schemes included the idea of “ranks,” such as species, genus, family, order, class, etc. In this system (the Linnean system), for example, there is a Class Reptilia and a Class Aves. However, the bulk of evidence supports, and the majority of scientists now agree, that the group Aves belongs within the larger group Reptilia (birds share a most recent common ancestor with crocodiles, which are generally included in the Class Reptilia). Within a traditional, Linnean system of classification this means that either the Class Aves is demoted to something below a class, or that a class (Aves) exists within another class (Reptilia). Problems such as this have prompted many scientists to propose that a system of naming and classification of biological diversity be rank-free. Classification systems then only indicate the hierarchical structure of groups according to the current understanding of their evolutionary history, leaving out rank labels.

## Glossary of terms related to classification and naming of organisms:

**Classification** – a system of naming objects or entities by common characteristics. In a biological sense, classification is the systematic grouping of organisms based on structural or functional similarities or evolutionary history. A process of establishing, defining, and ranking taxa within hierarchical series of groups.

**Taxonomy** – the classification of organisms into a system that indicates natural relationships (evolutionary relationships); the theory and practice of describing, naming, and classifying organisms.

**Systematics** – the systematic classification of organisms and the evolutionary relationships among them; taxonomy.

**Phylogeny** – the evolutionary history of a group or lineage.

**Nomenclature** – the system of scientific names applied to taxa (groups of organisms).

## read:

* 1. **Read a part of the text and tell your groupmates about the group you**

**Segmented worms (Annelida)**

The animals in the Annelida are segmented worms. They have no legs, and no

hard skeleton. Unlike mollusks, annelid bodies are divided into many little segments, like rings joined together. There are many other kinds of worms, but only annelids are

segmented this way. There are three main groups of annelids, the earthworms (and their relatives), the leeches, and a big group that lives in the ocean and are called *polychaetes* (pol-ee-keets). We only have information about earthworms and leeches in the Critter Catalog.

## Snails and slugs (Gastropoda)

### What do they look like?

The Class Gastropoda includes snails and slugs. Most gastropods have a single, usually spirally coiled shell, but the shell is lost or reduced in some groups. Many snails have an operculum, a plate that closes the gastropod's opening. Shelled gastropods have mantles, while those without shells have reduced to absent mantles.

Gastropods have a muscular foot used for creeping in most species. In some, the foot is modified for swimming or burrowing. Most gastropods have a well-developed head that includes eyes at the end of one to two pairs of tentacles.

### Where in the world do they live?

Gastropods are found worldwide. Gastropods are by far the largest group of molluscs. Their 40,000 species comprise over 80% of living molluscs.

### What kind of habitat do they need?

Gastropods are found in freshwater systems, oceans, and on land wherever there is sufficient moisture.

## These animals are found in the following types of habitat:

temperate; tropical; terrestrial; saltwater or marine; freshwater.

## Terrestrial Biomes:

chaparral; forest; rainforest; scrub forest; mountains.

## Aquatic Biomes:

lakes and ponds; rivers and streams; coastal.

## Wetlands:

marsh; swamp; bog.

### How do they grow?

Gastropods lay eggs. The eggs of some species contain a large yolk. Development of the eggs may be within the body, or the eggs may be expelled to develop externally. Eggs develop into larvae. Those species that will develop a shell start it while larvae. As the animal develops, it adds another curl of shell, ending in an opening from which the head and foot of the animal emerge.

### How do they reproduce?

Gastropods are sexual, and some forms are hermaphroditic, meaning that a single individual can produce both egg and sperm. These individuals will exchange sperm with another individual rather than fertilizing themselves.

### What do they eat?

Gastropods feed on very small things. Most of them scrape or brush particles from surfaces of rocks, seaweeds, animals that don't move, and other objects. For feeding, gastropods use a radula, a hard plate that has teeth.

Gastropod feeding habits are extremely varied, although most species make use of a radula in some aspect of their feeding behavior. Some graze, some browse, some feed on plankton, some are scavengers or detritivores, some are active carnivores.

Primary Diet: carnivore (eats terrestrial vertebrates, eats non-insect arthropods); herbivore.

## Insects (Insecta)

The **Insects** are the most diverse and important group of animals on land. There are more species of insects than all other land animals put together. Insects live in all habitats and occupy any microhabitat you can imagine. They can be predators, prey, parasites, hosts, herbivores, or decomposers.

Insects are members of a larger group called **arthropods** (which also includes arachnids, myriapods, and crustaceans). All arthropods have a rigid exoskeleton, and legs that are jointed (arthropod means "jointed foot"). In order to grow, arthropods have to shed their whole exoskeleton all at once; this is called "molting." All insects have bodies which are divided into three sections: the head, thorax, and abdomen. In some insects these sections are fused together so they may be hard to tell apart, and some baby insects (called immature) do not have all three sections until they become adults. Nearly all insects have a pair of antennae on their heads. They use their antennae to touch and smell the world around them. Adult insects (and most immatures) have six legs that are attached to the middle section of the body, the thorax. Insects are the only arthropods that have wings, and the wings are always attached to the thorax, like the legs.

All insects lay eggs. There are two ways that insects grow: complete or incomplete metamorphosis. Insects that have **complete metamorphosis** have babies that look very different from the adults and often eat very different foods than adults. Butterflies, beetles, and true flies are some of the groups that have complete metamorphosis. The babies are called larvae. Caterpillars and maggots are examples of insect larvae. Larvae often have soft exoskeletons that stretch so they can grow fast, and they go through a resting stage called a pupa before emerging as an adult. Insects that have **incomplete metamorphosis** have babies that look like small adults with no wings. They usually eat the same kind of food as the adults do. Grasshoppers and cockroaches are two kinds of insects that have incomplete metamorphosis.

## Arachnids (Arachnida)

**Arachnids** are spiders, harvestmen, mites and ticks, and their relatives like scorpions that don't live in Michigan. All arachnids have eight legs, and unlike insects, they don't have antennae. The bodies of arachnids are divided into two sections, the cephalothorax in front and the abdomen behind. Sometimes times small arachnids like mites and harvestmen have the two sections fused close together so you can't see the separation. No arachnids have wings, although some spiders can float on the wind using long strands of silk. Many arachnids use silk, either to catch prey or to help them reproduce. Arachnids lay eggs, and have simple development where babies look like small adults and just get bigger as they grow. Some arachnids, especially the mites, change a lot in different stages of their lives. Arachnids are part of a larger group called **arthropods**, which also includes insects, myriapods, and crustaceans. All arthropods have an exoskeleton and legs that are jointed (arthropod means "jointed foot"). In order to grow, arthropods must shed their whole exoskeleton all at once; this is called "molting."

There are hundreds of thousands of species of arachnids. Arachnids are found in nearly all land habitats, and there are some in aquatic habitats as well. Most arachnids can only eat liquid food, not solid food, so they squirt digestive chemicals into their prey and suck out the juice. Arachnids are predators on insects and other invertebrates,

except for many mites, which feed on all kinds of things, like fungus, plants, dead animals, bacteria, and other invertebrates.

## Myriapoda

The Myriapods are centipedes and millipedes, and some small relatives. Centipedes and millipedes look similar to each other; they both look a little like worms with lots of legs. Actually they are arthropods, they have a tough exoskeleton and jointed legs, and they are related to insects and crustaceans. Like insects, myriapods have one pair of antennae, but they have many more legs than insects do. In Michigan, all myriapods have more than 20 legs, and all the other arthropods have fewer legs than that (most have only 6 or 8 legs).

Millipedes usually have round bodies, and have two pairs of legs on each body segment. They move slowly and often tunnel into soil and dead leaves. Nearly all millipede species are decomposers: they eat dead leaves, fungi, and detritus. If another animal threatens them, they may curl up, and some give off smelly toxic chemicals to protect themselves. Myriapods are an ancient group of animals, they were the the very first animals to live on land. Before them the only animals in the world lived in the sea.

Centipedes are usually flattened, and only have one pair of legs per segment.

Centipedes are quick predators, eating any small animals they can catch. They have a venomous bite, but no Michigan species are dangerous to people.

Both centipedes and millipedes need a damp environment to survive, and mostly live on or under the ground.

## Crustaceans (Crustacea)

**Crustaceans** are **arthropods**, related to insects and myriapods. They are the most diverse animal group in underwater habitats. Only a few crustacean groups have evolved the ability to live on land, and like amphibians, these terrestrial crustaceans still need water or damp places to live. Like all arthropods, crustaceans have a hard (sometimes very hard!) exoskeleton, and jointed legs. Unlike other arthropods, crustaceans have 2 pair of antennae. Sometimes one pair is very small and hard to see.

There are two main crustacean groups that live on land in Michigan. These are **isopods** and **crayfish**. Terrestrial isopods are sometimes called pillbugs, sowbugs, slaters, or roly-polies. These little animals have oval-shaped bodies with 14 legs and a hard exoskeleton of overlapping plates. The overlapping plates allow the animal to roll into a ball for protection from predators. Isopods feed mainly on dead plant material, and the fungus and micro-organisms that grow there. They can live in many habitats, as long as they can find some moisture and a dark place to hide. Most kinds of isopods live on ocean shores or on the sea bottom, but a few have spread across the land, far from the sea.

Crayfish look like small lobsters and are closely related to lobsters. They have one pair of big claws and 10 walking legs. Most crayfish live in freshwater, though a few species come out of the water at night to look for food or new places to live. Crayfish are omnivores, eating algae, small animals, and scavenging on larger dead animals too.

Both isopods and crayfish lay eggs, and the females carry their eggs under their bodies until they hatch.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: animal, evolutionary history, taxonomу, segmented worm, snails, slugs, insects, crustaceans.*

1. Оголошення завдання для самостійної роботи.

*Choose a group of animals to prepare a report about its characteristics.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 23

**Організаційна частина.**

1.Повідомлення теми, мети заняття.

**Тема заняття:** Кисень: історія відкриття елемента

Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* форми модальних дієслів та їх еквівалентів та правила їх вживання.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* вживати модальні дієслова та їх еквіваленти в різних часових формах в умовно-комунікативних та комунікативних ситуаціях, письмових тексах різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати класифікацію живих організмів, давати характеристику виду.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** Domain - Archea, Eubacteria, Eukaryote, Kingdom - Plants, Animals, Fungi, Protists, Eubacteria (Monera), Archaebacteria, Phylum, Class, Order, Family, Genus, Species.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What are the principles by which living organisms are divided into groups?*

* 1. Мотивація навчальної діяльності.

*Why is classification of living things necessary?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Study the text, get ready to answer the questions.**

1. **Classification of Living Things & Naming**

With so many flora and fauna on planet Earth, there must be a method to classify each organism to distinguish it from others so it can be correctly identified. Classification does not only apply to biology. For example, supermarkets and grocery stores organise their products by classifying them. Beverages may occupy one aisle, while cleaning supplies may occupy another. In science, the practice of classifying organisms is called **taxonomy** (Taxis means arrangement and nomos means law). The modern taxonomic system was developed by the Swedish botanist Carolus (Carl)

Linneaeus (1707-1788). He used simple physical characteristics of organisms to identify and differentiate between different species.

Linneaeus developed a hierarchy of groups for taxonomy. To distinguish different levels of similarity, each classifying group, called **taxon** (pl. taxa) is subdivided into other groups. To remember the order, it is helpful to use a mnemonic device. The taxa in hierarchical order:

* Domain - Archea, Eubacteria, Eukaryote
* Kingdom - Plants, Animals, Fungi, Protists, Eubacteria (Monera), Archaebacteria
* Phylum
* Class
* Order
* Family
* Genus
* Species

The domain is the broadest category, while species is the most specific category available. The taxon Domain was only introduced in 1990 by Carl Woese, as scientists reorganise things based on new discoveries and information. For example, the European Hare would be classified as follows:

Eukaryote --> Animal --> Chordata --> Mammalia --> Lagomorpha --> Leporidae --> Lepus --> *Lepus europaeus*.

**Binomial nomenclature** is used to name an organism, where the first word

beginning with a capital is the genus of the organism and the second word beginning with lower-case letter is the species of the organism. The name must be in italics and in Latin, which was the major language of arts and sciences in the 18th century. The scientific name can be also abbreviated, where the genus is shortened to only its first letter followed by a period. In our example, *Lepus europaeus* would become *L. europaeus'.*

Taxonomy and binomial nomenclature are both specific methods of classifying an organism. They help to eliminate problems, such as mistaken identity and false assumptions, caused by common names. An example of the former is the fact that a North American robin is quite different from the English robin. An example of the latter is the comparison between crayfish and catfish, where one might believe that they both are fish when in fact, they are quite different.

Nomenclature is concerned with the assignment of names to taxonomic groups in agreement with published rules.

## Eukaryotes & Prokaryotes

Recall that there are two basic types of cells: **eukaryotes** and **prokaryotes**.

Eukaryotes are more complex in structure, with nuclei and membrane-bound organelles. Some characteristics of eukaryotes are:

* Large (100 - 1000 μm)
* DNA in nucleus, bounded by membrane
* Genome consists of several chromosomes.
* Sexual reproduction common, by mitosis and meiosis
* Mitochondria and other organelles present
* Most forms are multicellular
* Aerobic

Prokaryotes refer to the smallest and simplest type of cells, without a true nucleus and no membrane-bound organelles. Bacteria fall under this category. Some characteristics:

* Small (1-10 μm)
* DNA circular, unbounded
* Genome consists of single chromosome.
* Asexual reproduction common, not by mitosis or meiosis.
* No general organelles
* Most forms are singular
* Anaerobic

## The Three Domains

The three domains are organised based on the difference between eukaryotes and prokaryotes. Today's living prokaryotes are extremely diverse and different from eukaryotes. This fact has been proven by molecular biological studies (e.g. of RNA structure) with modern technology. The three domains are as follows:

**Archea (Archeabacteria)** consists of archeabacteria, bacteria which live in extreme environments. The kingdom Archaea belongs to this domain.

**Eubacteria** consists of more typical bacteria found in everyday life. The kingdom Eubacteria belongs to this domain.

**Eukaryote** encompasses most of the world's visible living things. The kingdoms Protista, Fungi, Plantae, and Animalia fall under this category.

## The Six Kingdoms

Under the three domains are six kingdoms in taxonomy. The first two, **Plants** and

**Animals**, are commonly understood and will not be expounded here.

**Protista**, the third kingdom, was introduced by the German biologist Ernst Haeckel in 1866 to classify micro-organisms which are neither animals nor plants. Since protists are quite irregular, this kingdom is the least understood and the genetic similarities between organisms in this kingdom are largely unknown. For example, some protists can exhibit properties of both animals and plants.

**Fungi** are organisms which obtain food by absorbing materials in their bodies. Mushrooms and moulds belong in this kingdom. Originally, they were part of the plant kingdom but were recategorised when they were discovered not to photosynthesise.

**Eubacteria** are bacteria, made up of small cells, which differ in appearance from the organisms in the above kingdoms. They lack a nucleus and cell organelles. They have cell walls made of peptidoglycan.

**Archae (or Archaebacteria)** are bacteria which live in extreme environments, such as salt lakes or hot, acidic springs. These bacteria are in their own category as detailed studies have shown that they have unique properties and features (ex. unusual lipids that are not found in any other organism)which differ them from other bacteria and which allow them to live where they live. Their cell walls lack peptidoglycan.

## Origins of Diversity

The diversity in our planet is attributed to diversity within a species. As the world changed in climate and in geography as time passed, the characteristics of species diverged so much that new species were formed. This process, by which new species evolve, was first described by British naturalist Charles Darwin as **natural selection**.

For an organism to change, genetic mutations must occur. At times, genetic mutations are accidental, as in the case of prokaryotes when they undergo asexual

reproduction. For most eukaryotes, genetic mutations occur through sexual reproduction, where meiosis produces haploid gametes from the original parent cells. The fusion of these haploid gametes into a diploid zygote results in genetic variation in each generation. Over time, with enough arrangement of genes and traits, new species are produced. Sexual reproduction creates an immense potential of genetic variety.

One goal of taxonomy is to determine the evolutionary history of organisms. This can be achieved by comparing species living today with species in the past. The comparison in anatomy and structure is based on data from development, physical anatomy, biochemistry, DNA, behaviour, and ecological preferences. The following are examples of how such data is used:

* Anatomy:

Although a horse and a human may look different, there is evidence that their arm structures are quite similar. Their arms' sizes and proportions may be different, but the anatomical structures are quite similar. Such evidence reveals that animals in different taxa may not be that different. Biological features from a common evolutionary origin are known as **homologous**.

* Development
* Biochemistry:

Biochemical analysis of animals similar in appearance have yielded surprising results. For example, although guinea pigs were once considered to be rodents, like mice, biochemistry led them to be in their taxon of their own.

## Phylogeny, Cladistics & Cladogram

Modern taxonomy is based on many hypotheses' of the evolutionary history of organisms, known as **phylogeny**. As with the Scientific Method, scientists develop a hypothesis on the history of an animal and utilise modern science and technology to prove the phylogeny.

**Cladistics** is a classification system which is based on phylogeny. Expanding on phylogeny, cladistics is based on the assumption that each group of related species has one common ancestor and would therefore retain some ancestral characteristics. Moreover, as these related species evolve and diverge from their common ancestor, they would develop unique characteristics. Such characteristics are known as **derived characteristics**

The principles of phylogeny and cladistics can be expressed visually as a **cladogram**, a branching diagram which acts as a family (phylogenetic) tree for similar species. A cladogram can also be used to test alternative hypotheses for an animal's phylogeny. In order to determine the most likely cladogram, the derived characteristics of similar species are matched and analysed.

## Classification of Living Things Practice Questions

* 1. If taxonomists had to select an existing kingdom to reclassify, which of the six would most likely be chosen? Why?
  2. Complete the following without consulting external sources:

1. The species *caudatum* is in the family *Paramecidae*. What would be the binomial name of this organism?
2. Give the abbreviation of the binomial name. 3.
3. Irish moss belongs to the genus *Chondrus*. The name for this species is *crispus*. Give the binomial name.
4. Give the abbreviation of the binomial name.
5. Humans and chimpanzees are alike. Which of the following data would most accurately prove this correct?
6. biochemistry
7. DNA
8. appearance
9. development
10. A, B, C
11. Which of the following is out of order?
12. Kingdom --> Phyllum --> Class
13. Class --> Family --> Order
14. Family --> Order --> Genus
15. Genus --> Species
16. A, C
17. A, B, D
18. B, C
19. A taxonomist discovers Organism A and Organism B and wishes to classify them. Which of the following choices is the most informative?
20. Both organisms are brown.
21. Both organisms have a tail.
22. Both organisms have ears.
23. Both organisms are nocturnal.
24. DNA analysis is usually done using DNA found in a cell's mitochondria, and not in a cell's nucleus. From your knowledge of mitosis, explain why this is so.

1. Arachbacteria 3.a) Chondrus crispus b) C. cripus 4. B 5. G 6. B

## ІІІ. Підбиття підсумків заняття.

Узагальнення та систематизація вивченого.

*Give the deffinition of the following: Domain - Archea, Eubacteria, Eukaryote, Kingdom - Plants, Animals, Fungi, Protists, Eubacteria (Monera), Archaebacteria, Phylum, Class, Order, Family, Genus, Species.*

Оголошення завдання для самостійної роботи.

*Choose a living thing to prepare a complete classification.*

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 24

**Організаційна частина.**

1.Повідомлення теми, мети заняття. **Тема заняття:** Структура ДНК. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* способи вираження припущення в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* користуватися різними способами вираження припущення в англійській мові в умовно-комунікативних та комунікативних ситуаціях, письмових тексах різних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати функції живих організмів;
* писати короткий виклад основної інформації за текстом.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** Respiration, Regulation, Reproduction, Excretion, Growth, Nutrition, Transport, Synthesis.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What are the functions of living organisms?*

* 1. Мотивація навчальної діяльності.

*What are the characeristics of living organisms?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Study the text, identify the characteristics of living things, write the summary**

**Characteristics of Living Things**

* + 1. **Living things are highly organized, from the smallest part to the largest.**

On the chemical level: [atoms](http://build.tripod.lycos.com/resource/glossary.htm#atom) make up [elements](http://build.tripod.lycos.com/resource/glossary.htm#element). Each element has a specific number of [electrons](http://build.tripod.lycos.com/resource/glossary.htm#electron) that orbit the nucleus. In the center of the element, the nucleus has [protons](http://build.tripod.lycos.com/resource/glossary.htm#proton) and [neutrons](http://build.tripod.lycos.com/resource/glossary.htm#neutron). The number of protons in an element is always equal to the number the electrons. The number of neutrons may vary to make [isotopes](http://build.tripod.lycos.com/resource/glossary.htm#isotope) of that element. Elements come together to give up, accept or equally share electrons to make molecules.

The smallest part of an organism is a cell.

Some single-celled organisms are free-living and contain structures, called organelles, that allow them to be self-sufficient.

More complex organisms are multicellular. In the case of a human, cells are organized into [tissues](http://build.tripod.lycos.com/resource/glossary.htm#tissue). These have a common function like a muscle.

Tissues are organized into [organs](http://build.tripod.lycos.com/resource/glossary.htm#organ) like the heart.

Organs are organized into [organ systems](http://build.tripod.lycos.com/resource/glossary.htm#organ%20system), like the cardiovascular system. Organ systems functioning together make up a living [organism](http://build.tripod.lycos.com/resource/glossary.htm#organism).

A [population](http://build.tripod.lycos.com/resource/glossary.htm#population) is an organization of more than one individual. This is generally all of one [species](http://build.tripod.lycos.com/resource/glossary.htm#species) in a particular area. We could talk about the population of squirrels in our area or dogs or cats.

Enlarging our view, next comes a [community](http://build.tripod.lycos.com/resource/glossary.htm#community). An example of a community is the town or place we live. A more accurate biological description would include all the living things in that area. A community is composed of many species, including plants and animals

An [ecosystem](http://build.tripod.lycos.com/resource/glossary.htm#ecosystem) not only considers the living things in an area, but also the physical environment and the interrelated flow of energy. You may live in a desert ecosystem, a forest ecosystem, or another kind of ecosystem.

Most complex of all is the [biosphere](http://build.tripod.lycos.com/resource/glossary.htm#biosphere). In our case, this includes the all the areas of our planet where living things are found.

## All living things have an ability to acquire materials and energy.

Most of us call this eating! Then we have to be able to convert our food, a form of energy, to chemicals our cells can use through metabolism. Some organisms like plants, [algae,](http://build.tripod.lycos.com/resource/glossary.htm#algae) and some [microorganisms](http://build.tripod.lycos.com/resource/glossary.htm#microorganism) are [autotrophs](http://build.tripod.lycos.com/resource/glossary.htm#autotroph). The autotrophs we are most familiar with are the green plants that use [photosynthesis](http://build.tripod.lycos.com/resource/glossary.htm#photosynthesis) to make their own "food." Some bacteria use [chemosynthesis](http://build.tripod.lycos.com/resource/glossary.htm#chemosynthesis) for their energy source. Animals and [fungi](http://build.tripod.lycos.com/resource/glossary.htm#fungi) are [heterotrophs](http://build.tripod.lycos.com/resource/glossary.htm#heterotroph) and capture their food in a variety of ways.

The ability to acquire and use energy is extremely important. Without a constant input of usable energy, organisms would quickly become "disorganized" and die.

In order to survive, organisms must be able to achieve [homeostasis](http://build.tripod.lycos.com/resource/glossary.htm#homeostasis). Each type of organism has a specialized way to stay in balance with its outside and inside environments. A *paramecium* has a contractile vacuole that pumps excess water out of its cell in order to survive in a fresh water environment. You and I have an internal "thermostat" that helps us maintain a body temperature of about 98.6 degrees Fahrenheit.

## All living things have an ability to respond to their environment.

This often results in movement of the individual toward safety. This helps to ensure survival of the organism. For example, as young children we learned to avoid hot stoves and busy streets.

Plants also have some limited ability to move. They grow up toward the sun, and some have leaves able to turn to follow the sun, allowing them to photosynthesize better. Their roots grow down to search for water and minerals. If a plant doesn't get enough sunlight, water or minerals it will die.

## All living things have an ability to reproduce.

All living things, even the smallest bacteria, have a [chromosome](http://build.tripod.lycos.com/resource/glossary.htm#chromosome) containing [DNA.](http://build.tripod.lycos.com/resource/glossary.htm#DNA) [Prokaryotes](http://build.tripod.lycos.com/resource/glossary.htm#prokaryote) like bacteria only have one circular chromosome, called a plasmid. [Eukaryotes](http://build.tripod.lycos.com/resource/glossary.htm#eukaryote), multicellular organisms like plants and humans, have a species-specific number of chromosomes. As humans, we have 46 chromosomes, in 23 pairs. [Genes](http://build.tripod.lycos.com/resource/glossary.htm#gene) on chromosomes contain the instructions for the organism's structure and function.

However, the amazing diversity of organisms on earth have resulted because most organisms [reproduce sexually](http://build.tripod.lycos.com/resource/glossary.htm#sexual%20reproduction). Some, like earthworms are [hermaphrodites.](http://build.tripod.lycos.com/resource/glossary.htm#hermaphrodite) Most others have separate sexes, male and female, like marijuana plants, fish, birds, cattle and humans.

In order for two organisms to combine their genetic information without doubling the number of chromosomes given to offspring, Mother Nature came up with a way to reduce the number of chromosomes. Without it, each new generation would have double the number of its parents' chromosomes. This halving is done by [meiosis](http://build.tripod.lycos.com/resource/glossary.htm#meiosis) in the sex organs. In the female, the [ovary](http://build.tripod.lycos.com/resource/glossary.htm#ovary) produces [haploid](http://build.tripod.lycos.com/resource/glossary.htm#haploid) eggs and in the male the [testes](http://build.tripod.lycos.com/resource/glossary.htm#testes) produces haploid sperm. Each of these [gametes](http://build.tripod.lycos.com/resource/glossary.htm#gamete) contains only one chromosome from each of the pairs of chromosomes.

During [fertilization,](http://build.tripod.lycos.com/resource/glossary.htm#fertilization) the sperm and egg unite to form a [zygote](http://build.tripod.lycos.com/resource/glossary.htm#zygote), a diploid individual. This new individual is different from either parent, although it contains characteristics from both. This is what gives us the great diversity of life. In living things, we call this genetic [biodiversity.](http://build.tripod.lycos.com/resource/glossary.htm#biodiversity)

* + 1. **All living things have an ability to adapt.**

Modifications enable an organism to survive in its environment. [Natural selection](http://build.tripod.lycos.com/resource/glossary.htm#natural%20selection) allows individuals with better adaptations to survive better and reproduce more. Thus, their characteristics are passed into future generations and that makes the [species](http://build.tripod.lycos.com/resource/glossary.htm#species) stronger. However, it is important to note that individuals can only adapt to their environment, and species don’t adapt, they evolve.

All living things:

1. Are comprised of one or more units called cells
2. Reproduce (sexually or asexually)
3. Grow and develop
4. Obtain and use energy
5. Respond to their environment
6. All living things are comprised of cells.

Cell- a collection of living matter enclosed by a barrier that protects it from its surroundings.

**Unicellular organism**- a one-celled organism (e.g. bacteria)

**Multicellular organism**- an organism made of more than one cell, starfish, turtle)

1. All living things reproduce

…that is, they produce new individuals similar to themselves. Why is

reproduction necessary?

To replace the dead ones. Two Kinds of Reproduction: Asexual Reproduction:

* The prefix a- means without, so without sex.
* A single organism reproduces without the aid of another.
* Common among bacteria and other microscopic organisms
* Splitting (bacterial cells) or budding (plants) Sexual Reproduction:
* two cells from different individuals unite to produce the first cell of a new organism.
* Union of a sperm cell from male united with

egg cell from female.

\* Some organisms are capable of sexual and asexual reproduction.

1. All living things grow and develop

* Life does not necessarily mean continuous growth
* During growth organisms undergo a cycle of changes called development.
* Bodily maintenance occurs throughout life (requires energy). Aging occurs when an organism loses its ability to maintain itself.

1. All living things obtain and use energy · Energy required for growth and maintenance

* Energy (usually sugars) obtained from the environment
* Anabolism - a process (such as tissue growth) that involves synthesizing, or putting together, complex substances from simpler substances (sugars) (REQUIRES ENERGY)
* Catabolism- final breakdown (digestion) of complex substances into simpler ones, (*RELEASES ENERGY*)
* Metabolism- total sum of all chemical reactions in the body, or the balance between anabolism and catabolism

1. All living things respond to their environment Stimulus (plural stimuli)- anything that causes an organism to react

Irritability- the ability to react

Can plants respond to stimuli? Yes, but normally not as quickly as animals.

Homeostasis- (homeo- similar, -stasis standing) an organism’s ability to maintain

the constant or stable conditions necessary for life.

Just as the thermostat automatically cools or warms a room if it deviates from a desired temperature, your body maintains a constant temperature, 98.6 F or 37 C, at which it functions optimally.

1. **Read the text, imagine, how would you explain the subject to children. BIOLOGY** is defined as the study of life. **BIO**-'life' and **LOGY**-'the study of'

If you were to take a large number of living things, you would notice that they all have something in common. However, you would also know that they are different as well.

All living things show **UNITY** (similarities) as well showing a great deal of

**DIVERSITY** (differences).

Here is what all living things have in common...

* 1. All living things are highly organized and contain many complex chemical substances.
  2. All living things contain one or more cells. **UNICELLULAR**- contains just one cell **MULTICELLULAR**- contains many cells
  3. All living things use energy.
  4. Living things have a definite form and have a limited size.
  5. Living things grow.
  6. Living things respond to changes in the environment.
  7. Living things can reproduce.
  8. Living things eventually die.

Nonliving objects may show one, or even a few of these characteristics but they never show all of them...

We can take these characteristics of life and simplify each...these will make up the 8 life functions.

Scientists classify things as alive if they can carry out these 8 LIFE FUNCTIONS.

**R R R E G N T S**=biology

Here is a look at the 8 life functions in a bit more detail...

**RESPIRATION** - the breakdown of nutrients to yield (or give off) chemical energy.

Тhere are 2 types

* + 1. aerobic respiration - uses oxygen
    2. anaerobic respiration - doesn't use oxygen

**REGULATION** - the process where a living thing controls and coordinates its various activities.

in animals

1. nervous system uses nerve cells
2. endocrine system uses hormones

in plants - some parts produce hormones

**REPRODUCTION** - the process by which living things produce new living things of the same kind

there are 2 types

1. asexual reproduction--involves one parent and the offspring are identical to the

parent

1. sexual reproduction--involves two parents and the offspring is a combination

of both parents

**EXCRETION** - the process by which living things remove waste products produced by cell activities

**GROWTH** - the process by which living things increase in size or cell number

**NUTRITION** - the process by which living things take in materials from its environment for growth and repair;

there are 2 types

1. autotrophic nutrition--where a living thing can make its own food
2. heterotrophic nutrition--where a living thing must ingest (take in) its food

**TRANSPORT** - the process by which usable materials are taken into the living thing (ABSORPTION) and distributed throughout the living thing (CIRCULATION)

**SYNTHESIS** - the process by which smaller, simple substances are combined chemically to form larger, more complex substances

If a living thing has all 8 off these life functions, it is called an **ORGANISM**! When we refer to all of the life functions of an organism, we are referring to its

**METABOLISM**--the total of all the life functions required to sustain life (to stay alive)

## R + R + R + E + G + N + T + S = METABOLISM

An organism's external (outside) environment is always changing. By keeping the control and regulation of its metabolic activities, an organism can maintain a stable internal (inside) environment. This is called **HOMEOSTASIS**.

**HOMEOSTASIS** - the process by which an organism's metabolic activities are in a state of balance, ex. body temp, blood sugar levels.

## ІІІ. Підбиття підсумків заняття.

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: Respiration, Regulation, Reproduction, Excretion, Growth, Nutrition, Transport, Synthesis.*

1. Оголошення завдання для самостійної роботи.

*Choose one of the functions of living organisms to prepare a complete description.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 25

## Організаційна частина.

Повідомлення теми, мети заняття.

**Тема заняття:** Мікроскопи **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* принципи творення та вживання пасивного стану часів групи Simple.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати пасивні конструкції в часових формах Simple в усному та писемному мовленні різних функціональних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати поняття таксономії та історію її виникнення.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** naturalist, natural history, application, scientific expedition, nomenclature, species.

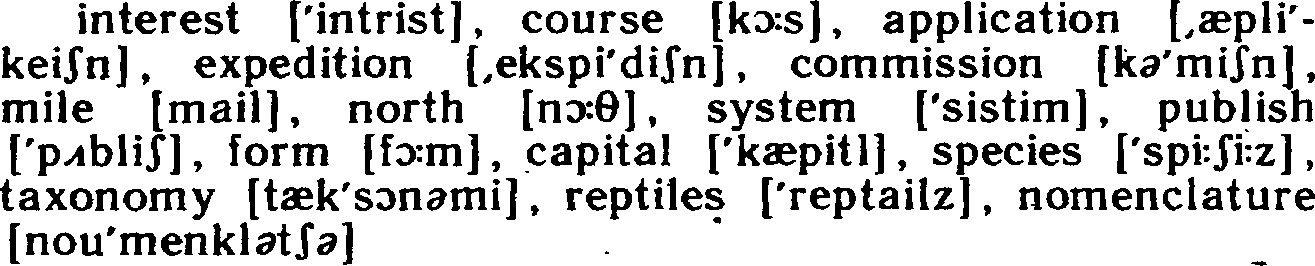
* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*How was the classification of living things created?*

* 1. Мотивація навчальної діяльності.

*Did the classification of organisms change since it had appeared?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read the following words and guess their meaning:**
  2. **Read and translate the text:**

**LINNEAN SYSTEM OF CLASSIFICATION**

Carolus Linneus was born in Sweden in a small wooden, house painted red with a roof of live turf. It was like many other houses in the village. But the house had a garden around it, so that Linneus used to say later that it was a good place for a naturalist to be born.

All the boy's teachers at school thought him stupid. But one of his father's friends observed that Carl took an unusual interest in plants and that he could identify a great many. He suggested sending Carl to study natural history. His father could give him only about forty dollars for his education, but it was thought that he could work his way. So he set off for the University of Lund. After a year he transferred to the University of Uppsala, since Uppsala had a very fine course of botany. His professor there soon grew very fond of him and saw a great promise in his work. After Linneus had finished his studies at the University with his professor's encouragement he made application to the Royal Society of Sweden to send him on a scientific expedition to Lapland. The Royal Society agreed to the commission. So on May 12, 1732 Linneus set out on foot on the, road leading north. He travelled mostly on foot over bad roads and through wild country for nearly a thousand miles. When he got back to Uppsala he gave a careful account of the things he had seen. The main thing among them was his new system of classification for plants and animals which he had worked out on his journey. Three years later this system was published under the title „Systema Naturae". This system has brought: order out of confusion. It was the system of nomenclature that has been used ever since.

According to Linneus system, every plant and every animal was given a double Latin name. The first word whose initial letter was capitalized would indicate to what "genus" or general class it belonged, the second word indicates a particular species. The naming of plants and animals in this way was a fascinating task. Linneus announced that everything in nature should be classified.

So science as orderly classified knowledge was coming into its own. The first edition of "Systema Naturae" was published in 1735. It contained only twelve pages, but its influence was enormous. Linneus is therefore considered the founder of taxonomy – the study of the classification. All the known animal species were grouped into six classes: mammals, birds, reptiles, fishes, insects and worms. The shortcomings were patched up easily enough later on.

This form of binominal nomenclature has given the biologist an international language for life forms that has eliminated incalculable amounts of confusion. He even supplied the human species with an official name; one that it has retained ever since – Homo sapiens.

## Notes to the text:

to be like smb. – бути схожим на

to come into one's own – виникнути, з’явиться на свет

to take interest in – цікавитися

to identify a great many plants – розпізнавати велику кількість рослин

to set off for the University – відправитися в університет

to set out on foot – відправитися пішки

to be fond of smb., smth. – любити когось, щось; захоплюватися кимось, чимось

to see promise in his work – побачити перспективу в роботі

to agree to a commission – погодитися на відрядження

to give account of smth. – звітувати, розповісти про щось

to work out – розробити

## Translate the following words bearing in mind the meaning of the affixes and memorize them:

nature (n), naturalist (n), natural (adj), unnatural (adj) to observe (v), observer (n), observation (n)

to suggest (v), suggestion (n), suggestive (adj) to transfer (v), transference (n)

to apply (v),.application (n), applicant (n)

to identify (v), identification (n), identity (n)

to encourage (v), encouragement (n), courage (n)

to agree (v), agreement (n), agreeable (adj), agreeably(adv) to lead (v), leader (n), leadership (n)

to announce (v), announcer (n), announcement (n)

## Form nouns using the following suffixes and translate them into Ukrainian:

* er: to publish, to research, to speak;
* or: to invent, to investigate, to translate, to visit;
* ant (ent): to study, to assist;
* ist: natural, special, biology.

## Arrange the following in pairs of synonyms:

vital processes, to estimate, main, country, enormous, to like, village, great, to think, to provide, living processes, to supply, principle, to account, to consider, to be fond of smth.

## Put as many questions as possible to the text and be ready to answer them.

**ІІІ. Підбиття підсумків заняття.**

1. Узагальнення та систематизація вивченого.

*Give the deffinition of the following: naturalist, natural history, application, scientific expedition, nomenclature, species.*

1. Оголошення завдання для самостійної роботи.

*Prepare a report about life and scientific activity of Carolus Linneus.*

1. Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 6

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття.

**Тема заняття:** Обладнання сучасної лабораторії.

## Дидактична мета:

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* принципи творення та вживання пасивного стану часів групи Continuous.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати пасивні конструкції в часових формах Continuous в усному

та писемному мовленні різних функціональних стилів;

* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати поняття таксономії та історію її виникнення;
* здійснювати письмовий переклад тексту науково-популярного стилю з англійської мови на українську та з української на англійську;
* писати короткий виклад основної інформації за текстом.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** systematics, binominal nomenclature, genius, standards, criteria, foundation, morphological features.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*How was the classification of living things created?*

* 1. Мотивація навчальної діяльності.

*Did the classification of organisms change since it had appeared ?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **State the tense of the following verbs and translate them:**

it is planted, he plants, they are being planted, they are to plant, I have planted, I had to plant, I had planted, it has been planted, he will plant, it will be planted, he is planting

## Define the tense and translate the sentences into Ukrainian:

They are planting a new sort of a tree.

He is being asked to follow the assistant.

He will be given every assistance in his work.

We are being waited for downstairs.

I am being asked about the system of classification.

I am often asked about this system.

They were told to go to the laboratory.

I was brought a new scientific journal.

The children are taught Botany at school.

The teacher is listening to the students.

The teacher is listened to.

## Translate the following sentences into English using the passive constructions:

**І.**

1. Вчора мені дали цікаву книгу.
2. Нам показали декілька нових приладів.
3. Вам допоможе наш спеціаліст з мікробіології.
4. Йому запропонувати подумати про ваш винахід.
5. На нього зараз чекають в університеті.
6. Їй подякували за цю роботу.
7. На їхнє питання дадуть відповідь.
8. За цим дослідженням послідують інші.
9. Вас зараз попросять відповісти на кілька питань.
10. Вам дадуть відповідь.

## IІ.

1. Він цікавився рослинами і міг відрізнити їх одне від одного.
2. Він зазвичай прокидався о 6 годині ранку.
3. Він дуже подобався своїм викладачам.
4. Він подав документи до аспірантури.
5. Ми розробили план роботи.
6. Незважаючи на погані погодні умови, вони пішли пішки.
7. Ми зробили все, що від нас залежало.
8. Згідно з його класифікацією, всі живі організми поділяються на дві групи.

## Read and translate the text; say what new information about plants and animals you got from it:

The present-day science of taxonomy or systematics has been recognized as a specialized branch of biology for over 200 years. During the century, a Swedish doctor and botanist Carl von Linneus travelled over most of Western Europe and England, collecting and studying the plants and animals of the region. He had a passion for classification and a genius for minute and accurate observation and for detaching the important from the trivial. His standards for describing and naming plants and animals and the criteria by which he estimated relationships and affinities were innovations for his time. His method of classification and the system he used for the comparatively limited number of organisms that were known to him are the foundations upon which the modern systematic groupings of biological systems have been built.

Linnean system of classification was founded on the concept of a basic natural grouping of like individuals, called species. He conceived of the species as a fixed and unchangeable grouping of similar individuals. He based his comparisons principally on morphological features and species was characterized, named, and filed away as an immutable entity. Such a system is essentially static and does not recognize the possibility of change. With the development of theories of evolution, the concept of species has changed. In the constant change and evolution, a species cannot be regarded as absolutely fixed.

## Translate the text into Ukrainian and then back into English, compare your version with the original:

Living things are all about us. More than a million different kinds of plants and animals inhabit the earth. Some are our friends, others are our enemies. Some are very large and some are very small. Yet each is a distinct organism, and each has its own way of living.

Suppose you were asked to learn the names of all the living things on the earth. Try to do it. No, you couldn't do it; no one could. Fortunately, there are groups of animals and groups of plants that greatly resemble each other. Because of this fact living things may be classified into large groups.

To study living things, it is necessary to sort them into groups. About a million and a half different kinds of plants and animals have already been studied, identified and named. In fact, for people who have not studied biology, the living world is a hopeless conglomeration of individual plants and animals.

## Write a report on С. Linneus's life and work using additional literature. Give the main points of all the texts of the lesson and be ready to speak on the topic "The History of the Science of Taxonomy".

**ІІІ. Підбиття підсумків заняття.**

Узагальнення та систематизація вивченого.

*Give the deffinition of the following: systematics, binominal nomenclature, genius, standards, criteria, foundation, morphological features.*

Оголошення завдання для самостійної роботи.

## Compose short dialogues for the following imaginary situations:

* 1. You came to a botanical museum and see a portrait of C. Linneus. Ask the guide about this scientist.
  2. You saw a picture of a tiger with a sign "Panthera Tigris". Ask your friend to

explain what it means.

* 1. You are to prepare a story on the system of classification, but you don't know what sources to use. Ask your friend for advice. What books on Linneus can he recommend?
  2. The teacher points to the tree and asks what it is. One student says that it is a common birch, the other – that it is Betula verrucosa. Each insists that he is right. How will you settle their argument?

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 26

**Організаційна частина.**

Повідомлення теми, мети заняття.

**Тема заняття:** Відомі хіміки та біологи.

**Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* принципи творення та вживання пасивного стану часів групи Perfect.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* використовувати пасивні конструкції в часових формах Perfect в усному та писемному мовленні різних функціональних стилів;
* читати науковий текст з загальним зрозумінням прочитаного;
* пояснювати, обговорювати історію виникнення мікроскопу;
* здійснювати письмовий переклад тексту науково-популярного стилю з англійської мови на українську та з української на англійську;
* писати короткий виклад основної інформації за текстом.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** microscope, magnify, vision, lens, eyepiece, a beam of light, mirror, base, stage.

* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

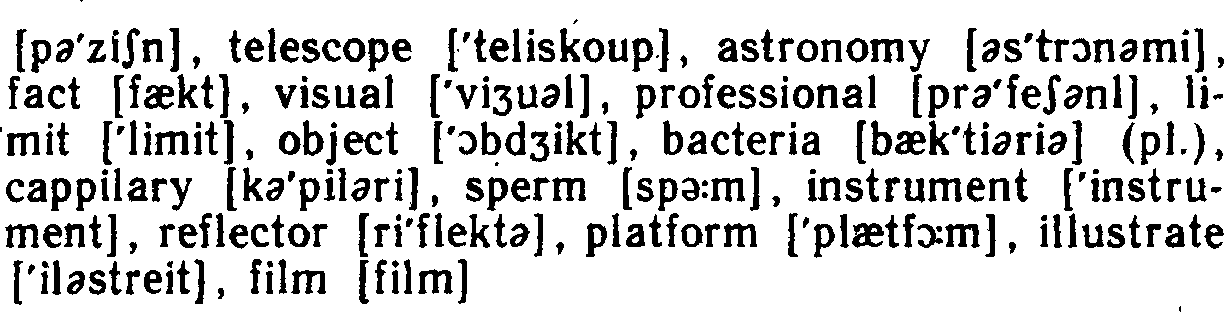
*What types of microscopes are there?*

* 1. Мотивація навчальної діяльності.

*What types of microscopes have you used for your investigations?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read the following words and guess their meaning:**



* 1. **Read the following words and guess their meaning:**

**THE MICROSCOPE**

Even the ancients had known that curved mirrors and hollow glass spheres filled with water had a magnifying effect. In the opening decades of the 17th century men began to experiment with lenses in order to increase this magnification as far as possible. In this, they were inspired by the great success of that other lensed instrument, the telescope, first put to astronomical use by Galileo [galə'lāō] in 1609.

Gradually, enlarging instruments, or microscopes (from Greek words meaning "to view the small") came into use. For the first time the science of biology was broadened and extended by device that carried the human sense of vision beyond the limit. It enables naturalists to describe small creatures with detail that would have been impossible without it, and it enabled anatomists to find structures that could not otherwise have been seen.

The first man, who made and used microscope was Anthony van Leeuwenhoek

['lāvən,hook; 'lāyən-]. He was not a professional scientist. In fact, he was a janitor in the city hall in Delft, Holland. He made more than 200 different microscopes, most of

which had only one carefully polished lens. With his homemade lenses, he explored all sorts of things and discovered a world never before seen by the eyes of man. He examined milk, water, insects, the thin tail of a tadpole, and many other objects. His discoveries of bacteria, blood capillaries, blood cells, and sperm cells made him famous. In 1675, he wrote the first description of the microscopic animals that live in water. Leeuwenhoek's microscopes were simple. But his great patience and keen powers of observation brought to light many new facts about living things.

THE MODERN MICROSCOPE. The microscopes of today are far more complicated than those of Leeuwenhoek's time. They are called compound microscopes because they contain more than one lens. At the top there is an eyepiece which has two lenses in it. Then there is a long tube with more lenses at the bottom. These are called objectives. You can choose different magnifying powers by swinging different objectives into position. The usual high school microscope has a choice of two powers. With the low power, you can magnify an object about 100 times. The high power objective with the usual eyepiece can enlarge things up to 500 times.

If you wish to examine an object under the microscope you must pass a beam of light through it. As the light passes through the lenses, it is bent in such a way that a magnified image appears. For this reason, anything you wish to see must be very thin. If it is too thick, the light will not go through it. Most microscopes have a mirror at the base. This can be moved in any direction. It reflects light up through the object and the lenses. The object, mounted on a piece of glass, is placed on a flat platform called the stage. Then the microscope is adjusted by moving the tube up or down. This places the objective at the correct height above the object. Unless you focus carefully in this way, you can not get a clear picture.

THE ELECTRON MICROSCOPE. There is a limit to the magnifying power of the compound microscope. The very best of them can enlarge an object up to 4000 times. In recent years a new type of microscope has been invented that does not use light. Instead, beams of electrons are passed through the object and a picture is made on film. The electron microscope can give us an image 25,000 times larger than the object. This development illustrates an important principle of science: when a new instrument is invented, it may speed up discoveries in the laboratory. Already, the electron microscope has made it possible to see things never dreamed of by Leeuwenhoek. We may be sure that in the future it will continue to reveal many new secrets of nature.

## Notes to the text:

to graduate from – закінчувати вищій навчальний заклад

a graduate – випускник

to a certain extent – до певної міри

to a great extent – в значній мірі

to a full extent – у повній мірі

in all appearance – цілком очевидно

## Translate the following words bearing in mind the meaning o f the affixes and memorize them:

to magnify (v), magnifier (n), magnification (n)

to increase (v), increase (n), increasing (adj), increasingly (adv) to decrease (v), decrease (n)

to inspire (v), inspiration (n)

to graduate ((v), gradual (adj), gradually (adv)

to extend (v), extension (n), extensive (adj), extensively (adv) to explore (v), explorer (n), exploration (n), explorative (adj) vision (n), visionary (n) (adj), visibility (n), visible (adj)

to observe (v), observer (n), observatory (n), observant (adj), observance (n) to complicate (v), complication (n)

to reflect (v), reflector (n), reflection (n), reflective (adj) to invent (v), inventor (n), invention (n), inventive (adj) to appear (v), appearance (n)

to disappear (v), disappearance (n)

## Underline the prefixes in the following words and translate them:

to discover, invisible, unknown, to exclude, indifferent, unnatural, to mislead, impossible, independent, irregular, nonliving, disorder; illegal

## State to what part of the speech the words belong and translate them into Ukrainian; form the corresponding verbs:

difference, assimilation, respiration, reproduction, organization, movement, magnification, resemblance, relation

## Form the nouns corresponding to the following verbs:

to discover, to construct, to affect, to know, to develop, to vary, to divide, 'to differ, to resemble, to observe, to suggest, to apply, to encourage, to agree, to magnify, to appear

## ІІІ. Підбиття підсумків заняття.

Узагальнення та систематизація вивченого.

*Give the deffinition of the following: microscope, magnify, vision, lens, eyepiece, a beam of light, mirror, base, stage.*

Оголошення завдання для самостійної роботи.

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 27

**Організаційна частина.**

Повідомлення теми, мети заняття. **Тема заняття:** Історія Менделєєва **Дидактична мета:**

### Студенти повинні знати:

**Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила передачі наказового способу у непрямій мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* правильно будувати та доречно обирати спосіб передачі наказового способу у непрямій мові засобами англійської мови;
* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
* пояснювати та обговорювати принципи теорії еволюції Дарвіна.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** mankind, race, natural historytheory of evolution, ancestors, the theory of natural selection, blood group A, blood group B, blood group AB, blood group 0.

Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is historical significance of "The Origin of Species by Means of Natural Selection" by Charles Darwin?*

Мотивація навчальної діяльності.

*What theory about how life appeared on earth do you support?*

## Зміст основної частини заняття (перелік практичних завдань):

**1Read and translate the following text; say what new information about plants and animals you got from it:**

**Darwin and evolution**

A hundred years ago people believed that plants and animals had always been as they are now. They thought that all the different sorts of living things, including men and women, had been put here by some mysterious power, a few thousand years ago.

It was Charles Darwin, born at Shrewsbury on February 12, 1809, who showed that this was just a legend. As a boy Darwin loved to walk about the countryside collecting insects, flowers and minerals. He enjoyed helping his elder brother at chemical experiments in a shed at the far end of their garden.

Because of this, his school friends called him "Gas'. These hobbies interested him much more than Greek and Latin, which were his main lessons at school. His father, himself a doctor, sent Charles to Edinburgh University to study medicine. But Charles disliked this work. He spent a lot of time with a zoologist friend, watching birds and other animals, and collecting insects in the surrounding countryside.

Then his father sent him to Cambridge to be trained as a clergyman. Darwin didn't want to be a doctor or a clergyman. He wanted to be a biologist.

## Translate the following into English:

Улюбленим заняттям Дарвіна було збирати рослини і спостерігати за тваринами. Він нічого не любив робити окрім колекціонування різних рослин. Дарвін мав стати лікарем, але зовсім не цікавився медициною. Якось він почув що якийсь корабель має здійснити подорож навколо світу. Саме на цьому кораблі Дарвін почав думати про теорію еволюції. Чим більше різних видів рослин і тварин він бачив, тим більше переконувався, що правий. Коли він. повернувся з подорожі, він почав писати книгу про результати своєї поїздки. Дарвіна ніщо не цікавило крім його книжки. Він продовжував збирати нові факти, і чим більше працював, тим ясніше бачив зв’язок у походженні різних видів тварин. Після тривалої роботи та спостережень він написав свою знамениту книгу «Походження видів», а в 1859 році описав як і чому один вид утворився з іншого. Чарльз Дарвін помер у 1882 році.

## 2. Translate the text and give the main point of it in writing.

Since the days when men climbed down out of the trees, he has spread out all over the earth in hot countries and cold, in mountains, jungle swamps and fertile valleys.

Wherever men went they lived in ways that suited the climate and geography of the particular place where they settled. For a long time they continued to look pretty much alike. Then there developed differences – in their skin colour, in the shape of their heads and in other minor physical features. In Africa, the isolated group developed darker skins; in Asia, yellow skins and slanting eyes; in Europe – fair or "white" skins.

The feature most used to distinguish the mankind is the colour of their skin. All three races – black, white, and yellow – are very much the same in other physical features. In each race there are some people who are tall and some who are short; some are long-headed, some round-headed. In each race there are some people who belong to blood group A, some to group B, some to AB and some to O. But all races are members of the same species. And wherever and whenever any group of any colour had the chance, they did their part in forwarding the march of human progress. History does not belong exclusively to any one race; it is shared by all. No race is mo re generous than any other race. You can make an important invention or write a great book or become a hero whatever the colour your skin or the shape of your head may be.

## ІІІ. Підбиття підсумків заняття.

Узагальнення та систематизація вивченого.

*Give the deffinition of the following: mankind, race, natural historytheory of evolution, ancestors, the theory of natural selection, blood group A, blood group B, blood group AB, blood group 0.*

Оголошення завдання для самостійної роботи.

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 28

**Організаційна частина.**

Повідомлення теми, мети заняття.

**Тема заняття:** Теорія атома Дальтона.

**Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила трансформації розповідного речення у непрямій мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* передавати розповідне речення у непрямій мові засобами англійської мови;
* читати науковий текст з загальним зрозумінням прочитаного;
* давати визначення клітини, обговорювати історію її відкриття.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** cell, the cell theory, a single cell, protoplas, protoplasmatic organization, nonliving, living substance, division of pre-existing cells, atomic theory.

Актуалізація опорних знань і контроль вихідного рівня знань студентів.

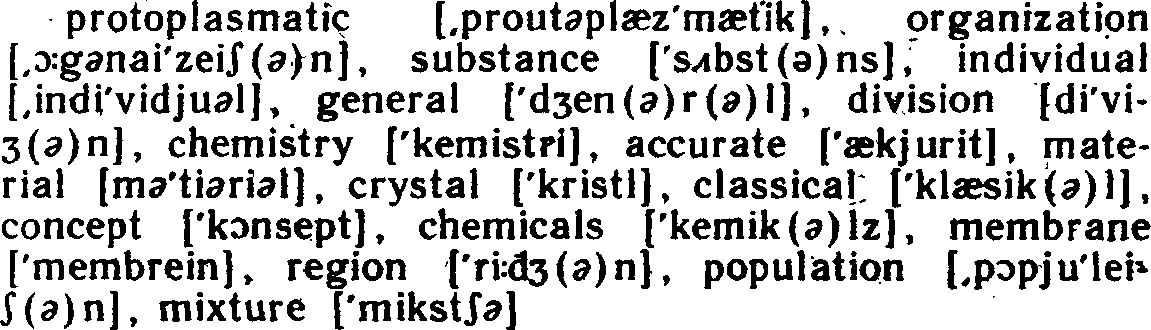
*What is the smallest structural unit of an organism? What does it consist of?*

Мотивація навчальної діяльності.

*What do you know about the cell theory?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read the following words and guess their meaning:**



* 1. **Read and translate the text:**

**THE CELL**

The unit of protoplasmatic organization is the cell. The word "cell" is not a very good choice in this connection, 'but it has significance in the history of biology. The name was given by Robert Hooke, one of the first scientists having used a newly developed biological tool, the microscope, to the tiny divisions that he saw in thin slices of cork. The cork slice, through his microscope, appeared to be made up of many small compartments, arranged in rows, and reminded him of the tiers of monks' cells in English monasteries. He therefore called each compartment a cell and the name has survived, although it does not accurately convey the picture of a living unit. What Hooke actually saw in the nonliving wall which had once surrounded the living protoplasm, was not the protoplasm itself. His microscopic studies of some other materials, such as feathers, fish scales, molds, snow crystals and fabrics, brought him closer to the sight of living cells but not close enough to see the living substance.

Observations of the classical microscopists and those of their successors on individual cells as parts of organisms, both plant and animal, led to one of the greatest and for a time most useful of biological generalizations, the cell theory. This concept was first brought to general attention in 1838.

It was a natural outcome of the many observations that had been made during the early part of the nineteenth and the preceding centuries. Briefly, it states that all organisms are composed of cells or of a single cell and that all cells, and hence all organisms, arise from the division of pre-existing cells. This theory was to biology, at that stage of its development, what Dalton's atomic theory was to chemistry.

## Translate the following words bearing in mind the meaning of the affixes and memorize them:

to signify (v), significance (n), significant (adj) to decompose (v), composer (n),

composition (n), decomposition (n)

to connect (v), connection (n), connective (adj) to organize (v), organizer (n), organization (n) to arrange (v), arrangement (n)

to generalize (v), generalization (n), generality (n), general (adj) concept (n), conception (n)

## Underline prefixes and suffixes having the negative meaning and translate the words:

inconvenient, unfavourable, inorganic, invisible, countless, unpleasant disintegration, helpless, deformation, useless, irregularity, insoluble

## Form verbs from the following nouns:

classification, organization, development, division, change, use, appearance, usefulness, observation, composer

## Arrange the following in pairs of synonyms:

exact, concept, brief, result, immense, to exist, fundamental, tiny, sort, disease, idea, shortly, conclusion, great, to live, basic, kind, illness, similarity, to make a voyage, likeness, precise, to travel, tool, instrument, small

## Find a word or a phrase with a meaning similar to the following words:

Investigation, period, to situate, small, piece, instrument, idea, result, short, importance, precisely

## ІІІ. Підбиття підсумків заняття.

Узагальнення та систематизація вивченого.

*Give the deffinition of the following: cell, the cell theory, a single cell, protoplas, protoplasmatic organization, nonliving, living substance, division of pre-existingcells, atomic theory.*

Оголошення завдання для самостійної роботи.

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 29

**Організаційна частина.**

1.Повідомлення теми, мети заняття. **Тема заняття:** Еволюційні теорії.

**Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила передачі наказового способу у непрямій мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* правильно будувати та доречно обирати спосіб передачі наказового способу у непрямій мові засобами англійської мови;
* читати науковий текст з загальним зрозумінням прочитаного;
* читати текст з метою пошуку специфічної інформації;
* давати узагальнення прочитаного українською мовою засобами англійської мови;
* пояснювати та обговорювати принципи теорії еволюції Дарвіна.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** mankind, race, natural historytheory of evolution, ancestors, the theory of natural selection, blood group A, blood group B, blood group AB, blood group 0.

Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*What is historical significance of "The Origin of Species by Means of Natural Selection" by Charles Darwin?*

Мотивація навчальної діяльності.

*What theory about how life appeared on earth do you support?*

## Зміст основної частини заняття (перелік практичних завдань):

* 1. **Read and translate the following text; say what new information about plants and animals you got from it:**

**Darwin and evolution**

A hundred years ago people believed that plants and animals had always been as they are now. They thought that all the different sorts of living things, including men and women, had been put here by some mysterious power, a few thousand years ago.

It was Charles Darwin, born at Shrewsbury on February 12, 1809, who showed that this was just a legend. As a boy Darwin loved to walk about the countryside collecting insects, flowers and minerals. He enjoyed helping his elder brother at chemical experiments in a shed at the far end of their garden.

Because of this, his school friends called him "Gas'. These hobbies interested him much more than Greek and Latin, which were his main lessons at school. His father, himself a doctor, sent Charles to Edinburgh University to study medicine. But Charles disliked this work. He spent a lot of time with a zoologist friend, watching birds and other animals, and collecting insects in the surrounding countryside.

Then his father sent him to Cambridge to be trained as a clergyman. Darwin didn't want to be a doctor or a clergyman. He wanted to be a biologist.

## Translate the following into English:

Улюбленим заняттям Дарвіна було збирати рослини і спостерігати за тваринами. Він нічого не любив робити окрім колекціонування різних рослин. Дарвін мав стати лікарем, але зовсім не цікавився медициною. Якось він почув що якийсь корабель має здійснити подорож навколо світу. Саме на цьому кораблі Дарвін почав думати про теорію еволюції. Чим більше різних видів рослин і тварин він бачив, тим більше переконувався, що правий. Коли він. повернувся з подорожі, він почав писати книгу про результати своєї поїздки. Дарвіна ніщо не цікавило крім його книжки. Він продовжував збирати нові факти, і чим більше працював, тим ясніше бачив зв’язок у походженні різних видів тварин. Після тривалої роботи та спостережень він написав свою знамениту книгу «Походження видів», а в 1859 році описав як і чому один вид утворився з іншого. Чарльз Дарвін помер у 1882 році.

## Reproduce the text in your own words:

[З автобіографії Ч. Дарвіна]

Після повернення додому зі своєї нетривалої геологічної екскурсії по північному Уельсу, знайшов листа від Гекслі (Huxley), в якому мене сповіщали, що капітан Фіцрой згоден поступитися частиною власної каюти юнаку, який виряджався безплатно на «Біглі», як натураліст. Я, здається, розповів, в своєму

подорожньому журналі про всі обставини, що супроводжували мій від’їзд. Скажу лише, що я не вагаючись ані хвилини був готовий прийняти цю пропозицію; Батько ж відмовив мені навідріз, але, на щастя, додав наприкінці: «Я погоджуся, якщо хоч одна людина при здоровому глузді порадить тобі їхати!». Я того ж вечора відповів відмовою. Наступного ранку я поїхав підготуватися до початку полювання 1 вересня. Та коли я полював, за мною приїхав мій дядько, запропонував підвезти мене до Шрюсбері та поговорити з моїм батьком, оскільки дядьку здавалося, що я зроблю розсудливо, якщо прийму пропозицію.

## 4. Translate the text and give the main point of it in writing.

Since the days when men climbed down out of the trees, he has spread out all over the earth in hot countries and cold, in mountains, jungle swamps and fertile valleys.

Wherever men went they lived in ways that suited the climate and geography of the particular place where they settled. For a long time they continued to look pretty much alike. Then there developed differences – in their skin colour, in the shape of their heads and in other minor physical features. In Africa, the isolated group developed darker skins; in Asia, yellow skins and slanting eyes; in Europe – fair or "white" skins.

The feature most used to distinguish the mankind is the colour of their skin. All three races – black, white, and yellow – are very much the same in other physical features. In each race there are some people who are tall and some who are short; some are long-headed, some round-headed. In each race there are some people who belong to blood group A, some to group B, some to AB and some to O. But all races are members of the same species. And wherever and whenever any group of any colour had the chance, they did their part in forwarding the march of human progress. History does not belong exclusively to any one race; it is shared by all. No race is mo re generous than

any other race. You can make an important invention or write a great book or become a hero whatever the colour your skin or the shape of your head may be.

## ІІІ. Підбиття підсумків заняття.

Узагальнення та систематизація вивченого.

*Give the deffinition of the following: mankind, race, natural historytheory of evolution, ancestors, the theory of natural selection, blood group A, blood group B, blood group AB, blood group 0.*

Оголошення завдання для самостійної роботи.

## Get ready for the following imaginary situations:

*A group of schoolchildren have come to visit our faculty. They have seen our wall-newspaper "The Beagle" and got interested in its title. Tell them what this title means.*

*Your friend doesn't believe in evolution. With the help of a time-machine you have managed to take him to the primitive age (several million years back). You see only amphibians and primitive scorpion around. Trace the development of life on earth. Discuss it.*

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

## ПРАКТИЧНЕ ЗАНЯТТЯ 10

1. **Організаційна частина.**
   1. Повідомлення теми, мети заняття. **Тема заняття:** Чарльз Дарвін. **Дидактична мета:**

### Студенти повинні знати:

* активну лексику за темою, яка вивчається;
* правила узгодження часів в англійській мові.

### Студенти повинні вміти:

* правильно вимовляти, вживати у власному мовленні, сприймати на слух активну лексику за темою, яка вивчається;
* правильно будувати та доречно передавати дію, що відбулася в минулому

засобами англійської мови;

* читати науковий текст з загальним зрозумінням прочитаного;
* викладати та обговорювати біографію Чарльза Дарвіна.

## Виховна мета:

* формування навичок виконання дій професійної діяльності;
* формування позитивної мотивації до вивчення англійської мови;
* розвиток навичок ділового спілкування;
* розвиток аналітичних навичок.

***Ключові слова:*** medical school, natural history, naturalist, survey, theory of evolution, ancestors, the theory of natural selection.

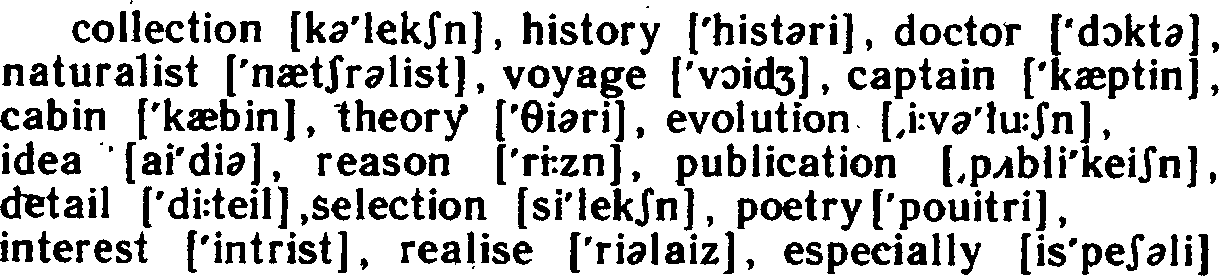
* 1. Актуалізація опорних знань і контроль вихідного рівня знань студентів.

*"The Origin of Species by Means of Natural Selection" Who is the author of this work? What other works of this author do you know?*

* 1. Мотивація навчальної діяльності.

*What theory about how life appeared on earth do you support?*

## Зміст основної частини заняття (перелік практичних завдань):

**1.Read the following words and guess their meaning:**

**2.Read and translate the text:**

**CHARLES DARWIN**

Charles Darwin was born in Shrewsbury, England. In those days schools did not teach science as they do today. Twelve-year old Darwin, who wanted to spend his time out of doors collecting plants and watching animals, had to stay inside and learn how to write poetry. He was very bad at it – so bad, in fact, that his father once wrote him angrily – “You care for nothing, but shooting dogs and rat-catching and you will be a disgrace to yourself and all our family”.

Charles's father then decided that he should be a doctor and sent him to a medical

school. But it soon became obvious that young Darwin was not at all interested in medicine. So his father tried to make a clergyman out of him and sent him to the University of Cambridge. Still Darwin couldn't make himself care for anything but hunting and natural history. As soon as he graduated, one of Darwin's professors, a scientist, who understood him better than his father urged him to apply for the job of naturalist aboard of the H.M.S. Beagle. The ship was to make a voyage around the world, surveying trade routes and looking for ways to improve trade for British merchants in the far-off corners of the earth. The captain was willing to give up part of his own cabin to any young man who would go without pay as naturalist. Today no one remembers how much the Beagle helped British merchants. The information the trip yielded about trade was far less important than the knowledge that was to change people's way of thinking. It was during his trip on the Beagle that Darwin first began to, develop his theory of evolution. Everywhere he sailed he collected facts about rocks, plants and animals. The more facts he gathered from different parts of the world, the more he became convinced that things he observed in nature could not be explained by the old idea that each species had been separately created.

The more he wandered and observed, the more he began to realize there was only one possible answer to the puzzle. If all these species of plants and animals had developed from common ancestors, then it was easy to understand their similarities and differences. At some time, Darwin thought, the common ancestors of both the island and mainland species must have travelled from the main land to the inlands. Later, all the species in both places, through slow changes, became different from each other.

After the Beagle returned to England, Darwin began his first notebook on the origin of species. During the next twenty years he filled notebook after notebook with still more facts that he and others discovered about the world of living things. These facts all led to one conclusion, that all living things are descended from common ancestors.

Darwin proved the truth of evolution, the descent with change of one species from another. Where others before him have failed, Darwin succeeded in convincing the

world that he was right about evolution. He succeeded for two reasons. He collected an enormous number of facts and put them together so that they told the whole story. And he not only declared that evolution occurred but he also explained how it worked and what caused it. This he called the theory of natural selection.

Nearly a hundred years have passed since Darwin's great book, "The Origin of Species by Means of Natural Selection", was published. People have found out new facts about evolution, and especially about inheritance. These facts have made more precise our ideas of how natural selection works. This does not mean the theory was wrong. On the contrary, a true theory is alive; like everything else in the world it changes and grows. Only a dead, useless theory stays the same down to the last detail.

## Notes to the text:

to fail – відчувати нестачу, не впоратися, схибити

his heart was failing – його сердце слабло

he failed his exams – він провалився на екзаменах

he failed to appear – він не з’явився

he managed to come – йому вдалось прийти

without fail – обов’язково, без сумніву

I succeeded in doing smth – мені вдалося…

care – турбота

to take care of – дбати

I don't саге – мені байдуже

he cared for nothing but – він ні про що не думав, окрім

to look – дивитись, виглядати

to look for – шукати

to look after – дбати про когось, спостерігати за кимось

to look at – дивитися на, звертати увагу

to look like – бути схожим на на

## 3.Translate the following words bearing in mind the meaning of the affixes and memorize them:

to inform (v), informer (n), information (n), informative (adj) to select (v), selector (n), selection (n), selective (adj)

to collect (v), collector (n), collection (n), collective (adj) to explain (v), explanation (n), explanatory (adj)

to fail (v), failure (n)

to succeed (v), success (n), successful (adj), succession {n)

evolution (л), evolutional (adj), evolutionalism (n)

## 4.Form the antonyms of the following words by using the prefixes — dis, mis, un, im, ex, non, de, il, ir:

possible, regular, living, organic, legal, natural, like, compose, understand, necessary, pleasant, appear, able, dependent, conscious, approval, liberate, belief, calculate, countable, variability, valuable

## 5.Give the derivatives of the following words:

collect, assimilate, microscope, include, division, product, differ, direct, care, possible, publish, observer, evolution

## 6.Write out from the text all sentences containing the sequence of tenses

## Put the following sentences into the indirect speech:

1. Hе said: I'll teach you natural science; I like to collect different plants and watch the behaviour of these animals day and night; I have caught a tortoise today; I am reading about different species of animals.
2. He asked: Has he decided to publish the materials of his voyage? Does he like to go on a sea voyage? Did he explain the origin of different species in his book? What conclusion did you tome to after reading this book? Will you return this book in time? Do you like it? Have you made a report about it?

## ІІІ. Підбиття підсумків заняття.

Узагальнення та систематизація вивченого.

*Give the deffinition of the following: medical school, natural history, naturalist, survey, theory of evolution, ancestors, the theory of natural selection.*

Оголошення завдання для самостійної роботи.

Повідомлення оцінок за роботу на занятті та їх обґрунтування.

**ЗАВДАННЯ ДЛЯ САМОСТІЙНОЇ РОБОТИ**

**Самостійна робота 1.**

**ТЕПЕРІШНІЙ ПРОСТИЙ ЧАС THE PRESENT SIMPLE TENSE УТВОРЕННЯ**

*Стверджувальна форма* дієслова в ***Present Simple*** в усіх особах однини і множини, крім третьої особи однини, збігається з інфінітивом (неозначеною формою дієслова) без частки **to**:

*І study*

*we study you study they study*

я навчаюся

ми навчаємося ви навчаєтеся вони навчаються

У третій особі однини до інфінітива без частки to додається закінчення

**-s** або **-es**:

*to invite – he invit****es****, to teach – she teach****es***

Більшість дієслів у третій особі однини мають закінчення **-s**.

Закінчення **-es** додається в таких випадках:

а) якщо дієслово закінчується на **s, ss, ch, tch, x**:

*to kiss – kiss****es****, to flash – flash****es***

б) якщо дієслово закінчується на у з попередньою приголосною (буква **у** змінюється перед **-es** на **і**):

*to multiply – multipl****ies****, to dry – dr****ies***

*Але:* якщо перед у стоїть голосна, то додається лише закінчення **-s**:

*to say – say****s****, to obey – obey****s***

в) якщо дієслово закінчується на **о**:

*to go – go****es****, to do – do****es***

*Питальна форма* ***Present Simple*** утворюється за допомогою допоміжного дієслова **do** або **does**, яке ставиться перед підметом:

***Do*** *I study?*

***Do*** *we study?*

***Does*** *he read?*

***Does*** *she write?*

**Примітка**. Якщо питальне слово виконує роль підмета або означення до підмета, допоміжне дієслово **do** або **does** у цьому випадку не вживається:

*Who lives there? Whose father lives there?*

*Заперечна форма* ***Present Simple*** утворюється за допомогою допоміжного дієслова **do** або **does**, заперечної частки **not** та інфінітива основного дієслова без частки **to**:

*І* ***do not*** *study. Не* ***does not*** *study.*

У розмовній мові замість **do not** і **does not** вживаються скорочені форми **don't** і **doesn't**:

*І* ***don't*** *see you. He* ***doesn't*** *see me.*

Дієслово **to be** в ***Present Simple*** має форми:

*I* ***am*** *he* ***is*** *she* ***is*** *it* ***is***

*we* ***are*** *you* ***are*** *they* ***are***

Питальна та заперечна форми дієслова **to be** утворюються без допоміжного дієслова **to do**:

*Are you an engineer? I am not an engineer.*

## ВЖИВАННЯ

***Present Simple*** вживається для вираження:

* 1. звичайної, повторюваної дії в теперішньому часі:

*Не goes to see her every day.*

* 1. дії, яка характеризує підмет постійно:

*Не speaks both French and English.*

* 1. загальновідомих істин:

*Water is a liquid.*

* 1. запланованої майбутньої дії в підрядних часу, причини та умови:

*І shall be there till he comes.*

* 1. запланованої майбутньої дії з дієсловами, що означають рух:

*His train arrives tomorrow morning.*

## ПАСИВНИЙ СТАН

Пасивний стан ***Present Simple*** утворюється за допомогою дієслова **to be** та дієприкметника минулого часу *(Past Participle)* основного дієслова:

*Не* ***is*** *interrogat****ed****. І* ***am*** *ask****ed*** *about it.*

## The simple present tense

*1. Read the following in the third person singular*

1. They wish to speak to you. (He)
2. Buses pass my house every hour.
3. They help their father. (He)
4. We change planes at Heathrow.
5. You watch too much TV. (He)
6. They worry too much. (He)
7. I cash a cheque every month. (He)
8. I always carry an umbrella. (She)
9. They wash the floor every week. (She)
10. His sons go to the local school.
11. These seats cost £10.
12. Elephants never forget.
13. They usually catch the 8.10 bus.
14. They sometimes miss the bus.
15. I mix the ingredients together.
16. The rivers freeze in winter.
17. They fly from London to Edinburgh.
18. The carpets match the curtains.
19. They realize the danger.
20. I use a computer.
21. They do nothing. They lie in bed all day.
22. The boys hurry home after school.
23. They kiss their mother.
24. They dress well.
25. Your children rely on you.
26. You fry everything.
27. The taxes rise every year.
28. They do exercises every morning.
29. Do you like boiled eggs? (He)
30. What do they do on their days off?

*2. Read the following (a) in the negative (b) in the interrogative*

1. You know the answer.
2. He has breakfast at 8.00.
3. He loves her.
4. Some schoolgirls wear uniforms.
5. He trusts you.
6. He tries hard.
7. The park closes at dusk.
8. He misses his mother.
9. The children like sweets.
10. He finishes work at 6.00.
11. He lives beside the sea.
12. He bullies his sisters.
13. This stove heats the water.
14. She has a cooked breakfast.
15. She carries a sleeping bag.
16. He usually believes you.
17. She dances in competitions.
18. You remember the address.
19. She plays chess very well.
20. He worries about her.
21. These thieves work at night.
22. He leaves home at 8.00 every day.
23. Ann arranges everything.
24. She agrees with you.
25. Their dogs bark all night.
26. Their neighbours often complain.
27. Tom enjoys driving at night.
28. He engages new staff every spring.
29. Tom looks very well.
30. They sell fresh grape juice here.
31. She cuts her husband's hair.
32. They pick the apples in October.
33. The last train leaves at midnight.
34. He relaxes at weekends.
35. She refuses to discuss it.

## Самостійна робота 2.

**МИНУЛИЙ ПРОСТИЙ ЧАС THE PAST SIMPLE TENSE УТВОРЕННЯ**

*Стверджувальна форма* дієслова в ***Past Simple*** в усіх особах

однини та множини збігається з другою формою дієслова:

*І worked we worked you worked*

я працював ми працювали ви працювали

В англійській мові дієслова поділяються на правильні та неправильні. ***Past Simple*** правильних дієслів утворюється додаванням до інфінітива без частки to закінчення **-ed**, яке вимовляється як:

## [t] *–* після глухих приголосних, крім t:

*to ask – asked to, like – liked*

## [d] *–* після дзвінких приголосних, крім d, та після голосних:

*to clean – cleaned, to live – lived, to answer – answered*

## [id] *–* після t, d, te, de:

*to want – wanted, to defend – defended, to hate – hated, to decide –*

*decided*

**Правопис правильних дієслів у *Past Simple*:**

а) якщо інфінітив закінчується на голосну **e**, то в ***Past Simple***

перед закінченням **-ed** вона не пишеться:

*to love — lov****ed***

б) якщо інфінітив закінчується на голосну **у**, перед якою стоїть приголосна, то перед закінченням **-ed** буква **у** змінюється на **і**:

*to study — stud****ied****, to cry — cr****ied***

в) якщо інфінітив закінчується на одну приголосну, якій передує короткий наголошений голосний звук, то кінцева приголосна подвоюється:

*to stop — sto****pp****ed to permit — permi****tt****ed*

г) кінцева буква **r** подвоюється, якщо останній склад наголошений і не має дифтонга (подвійного голосного звука):

*to prefer — prefe****rr****ed, to occur — occu****rr****ed*

д) кінцева буква **1** подвоюється, якщо їй передує короткий голосний звук (наголошений чи ненаголошений):

*to travel — trave****ll****ed, to fulfil - fulfi****ll****ed*

## Форма *Past Simple* неправильних дієслів утворюється по-різному.

*Питальна форма* ***Past Simple*** правильних і неправильних дієслів утворюється за допомогою допоміжного дієслова **did** та інфінітива основного дієслова без частки **to.** Допоміжне дієслово ставиться перед підметом:

***Did*** *you go to the Institute yesterday? What* ***did*** *he say?*

*Заперечна форма* ***Past Simple*** утворюється за допомогою допоміжного дієслова **did,** заперечної частки **not** та інфінітива основного дієслова без частки **to.** Допоміжне дієслово ставиться між підметом і присудком:

*І* ***did not*** *know this. They* ***did not*** *work.*

У розмовній мові замість **did not** вживається скорочена форма **didn't:**

*І* ***didn't*** *understand you.*

Дієслово **to be** в ***Past Simple*** має форми **was** і **were:**

*I* ***was*** *we* ***were***

*you* ***were*** *you* ***were***

*he* ***was*** *she* ***was*** *it* ***was***

*they* ***were***

Питальна та заперечна форми дієслова **to be** утворюються без допоміжного дієслова **did:**

***Were*** *you at home yesterday? I* ***was not*** *at home*

У розмовній мові замість **was not, were not** вживаються форми **wasn't, weren't:**

*They* ***weren't*** *afraid of him.*

## ВЖИВАННЯ

***Past Simple*** вживається для вираження:

1. одноразової або повторюваної дії в минулому. Час минулої дії часто уточнюється обставинами **yesterday, last week, the other day, ago** тощо:

*I saw you in the street yesterday. They lived in London before the war.*

1. ряду послідовних дій у минулому:

*І dressed, went downstairs, had some coffee in the kitchen and went out to*

*the garage.*

1. повторюваної дії у минулому:

*І saw her every day.*

## ПАСИВНИЙ СТАН

Пасивний стан ***Past Simple*** утворюється за допомогою допоміжного дієслова **to be** в ***Past Simple*** і ***Past Participle*** основного дієслова:

*І* ***was*** *examin****ed***

*you* ***were*** *examin****ed*** *he* ***was*** *examin****ed*** *she* ***was*** *examin****ed*** *it* ***was*** *examin****ed***

## The simple past tense

*we were examin****ed***

*you were examin****ed*** *they were examin****ed***

*3. Put the verbs in the following sentences into the simple past tense.*

1. I go to work by bus.
2. I meet her on Tuesdays.
3. He always wears black.
4. I make cakes every week.
5. She gets up at 6.30.
6. He understands me.
7. He shuts the shop at 6.00.
8. She speaks slowly.
9. He leaves the house at 9.00.
10. I read a chapter every night.
11. You eat too much.
12. I see him every day.
13. He cries when he is hurt.
14. Who knows the answer?
15. I think I know it.
16. He takes the dog out twice a day.
17. We buy them here.
18. I dream every night.
19. He often feels ill.
20. I know what he wants.
21. I usually pay him £5.
22. His dog always bites me.
23. It costs 30p.
24. My back hurts.
25. We drink water.
26. His roses grow well.
27. He rides every day.
28. He often falls off.
29. He puts up his prices every year.
30. He sleeps badly.

*4. Put the verbs in the following sentences into (a) the negative (b) the interrogative*.

1. She saw your brother.
2. We heard a terrible noise.
3. He slept till 10.00.
4. He looked at the picture.
5. They drank all the wine.
6. They set out early enough.
7. She thought about it.
8. The police caught the thief.
9. He hid the letter.
10. She found her watch.
11. His nose bled.
12. My mother chose this hotel.
13. She lent you enough money.
14. Keiko taught Japanese.
15. Tom hurt his foot.
16. He broke his arm.
17. His wife came at 8.00.
18. He lost his wallet.
19. His son wrote a novel.
20. They flew to New York.
21. Ann drew you a map.
22. Tom laid the table.
23. Mr Pitt fell downstairs.
24. She lost her way.
25. He forbade her to leave.
26. I sent it to the laundry.
27. Jack kept the money.
28. He rode slowly.
29. They spent it all.
30. She sold the car.
31. Jean rang the bell.
32. The sun rose at 6.00.
33. The boys ran home.
34. He shook the bottle.
35. He forgave her.

*5. Make the sentences (a) negative and (b) interrogative, using* ***do/does/did****.*

1. They have eggs for breakfast.
2. He needs a new coat.
3. He used to sell fruit.
4. They have to work hard.
5. She does the housework.
6. He needs more money.
7. He had a row with his boss.
8. She had a heart attack.
9. Her hair needed cutting.
10. He does his homework after supper.
11. She has a singing lesson every week.
12. He does his best.
13. He has to get up at six every day.
14. The children have dinner at school.
15. She dared him to climb it.
16. You did it on purpose.
17. He dares to say that!
18. They had a good time.
19. The drink did him good.
20. My watch needs cleaning.
21. He had an accident.
22. You had your house painted.
23. She used to make her own clothes.
24. You do the exercises.
25. He had difficulty (in) getting a job.

## Самостійна робота 3.

**МАЙБУТНІЙ ПРОСТИЙ ЧАС THE FUTURE SIMPLE TENSE УТВОРЕННЯ**

***Future Simple*** утворюється за допомогою допоміжних дієслів **shall** і

**will** та інфінітива основного дієслова без частки **to.** Допоміжне дієслово **shall**

вживається в першій особі однини і множини, **will** – у другій і третій особах:

*І* ***shall/will*** *stand you* ***will*** *stand he* ***will*** *stand*

*she* ***will*** *stand it* ***will*** *stand*

*we* ***shall/will*** *stand you* ***will*** *stand*

*they* ***will*** *stand*

**Примітка**. У сучасній англійській мові допоміжне дієслово **will**

вживається для утворення ***Future Simple*** в усіх особах.

У розмовній мові замість **shall** і **will** звичайно вживається скорочена форма **'ll**, яка на письмі приєднується до підмета:

*I****’ll*** *tell it to you after dinner.Я розкажу Вам про це після обіду.*

*He****’ll*** *be back in an hour. Він повернеться за годину.*

У *питальній формі* допоміжне дієслово ставиться перед підметом:

***Shall*** *we come back here?* Ми повернемося сюди?

*When* ***will*** *he be at home?* Коли він буде вдома?

У *заперечній формі* після допоміжного дієслова вживається заперечна частка **not:**

*We* ***shall not*** *go there.* Ми не підемо туди.

*Не* ***will not*** *stay here.* Він не залишиться тут.

У розмовній мові замість **shall not** і **will not** вживаються скорочені форми **shan't** і **won't:**

*І* ***shan't*** *go there.* Я не піду туди.

*She* ***won't*** *go to the theatre.* Вона не піде до театру.

## ВЖИВАННЯ

***Future Simple*** вживається для вираження одноразової, постійної або повторюваної дії в майбутньому:

*I'll go there with you.* Я поїду туди з тобою.

*I'll always come back.* Я завжди повертатимусь.

*He'll work at the factory next year.* Наступного року він працюватиме на фабриці.

В англійській мові ***Future Simple*** не вживається в підрядних часу та

умови. Для вираження майбутньої дії в таких реченнях вживається ***Present Simple***:

*I'll be here till you* ***come****. Я буду тут, доки ти прийдеш.*

*I'll give it to him when he* ***comes*** *back. Я дам це йому, коли він noвернеться.*

## ПАСИВНИЙ СТАН

Пасивний стан утворюється за допомогою допоміжного дієслова **to be**

у ***Future Simple*** і ***Past Participle*** основного дієслова:

*І (we)* ***shall be*** *examin****ed****.*

*He (she, it, you, they)* ***will be*** *examin****ed****.*

## The future simple tense

*6. Put the verbs in brackets into the future simple.*

1. I (know) the result in a week.
2. You (be) in Rome tonight.
3. You (be) able to drive after another five lessons.
4. Do you think that he (recognize) me?
5. Unless he runs he (not catch) the train.
6. He (lend) it to you if you ask him.
7. I hope I (find) it.
8. He (believe) whatever you tell him.
9. I (remember) this day all my life.
10. Perhaps he (arrive) in time for lunch.
11. If he works well I (pay) him £10.
12. I wonder how many of us still (be) here next year.
13. If you think it over you (see) that I am right.
14. If you learn another language you (get) a better job.
15. I am sure that you (like) our new house.
16. Newspaper announcement: The President (drive) along the High Street in an open carriage.
17. You (need) a visa if you are going to Spain.
18. You (feel) better when you've had a meal.
19. She (have) £1000 a year when she is twenty-one.
20. If you put any more polish on that floor someone (slip) on it.
21. I wonder if he (succeed).
22. I hope he (remember) to buy wine.
23. If you leave your roller skates on the path someone (fall) over them.
24. If they fall over them and hurt themselves they (sue) you.
25. If you want twenty cigarettes you (have) to give me more money.
26. Notice: The management (not be) responsible for articles left on the seats.
27. If I drop this it (explode).
28. You (have) time to help me tomorrow?
29. It (matter) if I don't come home till morning?
30. He (mind) if I bring my dog?

## Самостійна робота 4.

**ТЕПЕРІШНІЙ ТРИВАЛИЙ ЧАС**

**THE PRESENT CONTINUOUS TENSE ДІЄПРИКМЕТНИК ТЕПЕРІШНЬОГО ЧАСУ THE PRESENT PARTICIPLE**

**УТВОРЕННЯ**

* 1. ***Present Participle*** утворюється за допомогою закінчення **-ing**,

яке додається до інфінітива дієслова без частки **to**:

*to read — read****ing***

* 1. Якщо інфінітив закінчується на німе **e**, то перед закінченням

**-ing** воно опускається:

*to writ****e*** *— writ****ing***

* 1. Якщо інфінітив закінчується однією приголосною буквою, якій передує короткий наголошений голосний звук, то перед закінченням кінцева приголосна подвоюється:

*to sit — si****tt****ing, to begin — begi****nn****ing*

**Примітка.** Кінцева буква **k** після **оо** не подвоюється: *look —*

*looking*

* 1. Кінцева буква **г** подвоюється, якщо останній склад наголошений і не містить дифтонга:

*to prefer — prefe****rr****ing*

* 1. Кінцева буква **1** подвоюється, якщо їй передує короткий голосний звук (наголошений чи ненаголошений):

*to compel – compe****ll****ing to travel – trave****ll****ing*

* 1. У дієсловах *to lie, to tie, to die* буквосполучення **іе** перед закінченням **-ing** змінюється на **у**:

*to l****ie*** *— l****y****ing to t****ie*** *— t****y****ing to d****ie*** *— d****y****ing*

**Примітка**.Кінцева буква у перед закінченням **-ing** не змінюється:

*to tr****y****- tr****y****ing*

## ТЕПЕРІШНІЙ ТРИВАЛИЙ ЧАС

**THE PRESENT CONTINUOUS TENSE**

**УТВОРЕННЯ**

***Present Continuous*** утворюється за допомогою допоміжного дієслова **to be** в ***Present Indefinite*** і дієприкметника теперішнього часу ***(Present Participle)*** основного дієслова.

*Стверджувальна форма* ***Present Continuous****:*

*I* ***am*** *speak****ing*** *(I'm speaking) he* ***is*** *speak****ing*** *(he's speaking) she* ***is*** *speak****ing*** *(she's speaking) it* ***is*** *speak****ing*** *(it's speaking)*

*we* ***are*** *speak****ing*** *(we're speaking)*

*you* ***are*** *speak****ing*** *(you're you speaking) they* ***are*** *speak****ing*** *(they're speaking)*

У дужках подано скорочені форми, що вживаються в розмовній мові. У *питальній формі* допоміжне дієслово ставиться перед підметом: ***Are*** *the boys playing chess?*

***Is*** *she working in the garden? What* ***are*** *you doing?*

У *заперечній формі* після допоміжного дієслова вживається заперечна частка not:

*The girls* ***are not*** *singing.*

У розмовній мові замість **is not** i **are not** вживаються скорочені форми

## isn't і aren't:

*She* ***isn't*** *listening in. Why* ***aren't*** *you working?*

## ВЖИВАННЯ

***Present Continuous*** вживається для вираження:

1. дії, що відбувається в момент мовлення:

*You are not listening to me.*

1. тривалої дії, що відбувається в певний період теперішнього часу, хоч і не обов'язково в момент мовлення:

*What are you doing here in London? I'm studying at the University.*

1. тривалої дії, що відбувається одночасно з іншою дією, яка належить до теперішнього часу:

*І am only happy when I am working.*

1. запланованої майбутньої дії, особливо з дієсловами, що означають рух:

*We are flying to Paris in the morning.*

*When are you coming back? Is he coming tonight?*

1. роздратування мовця щодо дії, яка відбувається постійно (зазвичай із словами *always, constantly, continually)*

*He is always loosing things.*

Дієслово **to go** у ***Present Continuous*** з інфінітивом іншого дієслова означає намір виконати дію в найближчому майбутньому або надає відтінку обов'язковості, неминучості виконання дії, позначеної інфінітивом:

*І am* ***going to speak****.*

*It's* ***going to rain.***

*He is* ***going to be*** *an engineer.*

## Verbs not normally used in the Continuous Tenses

**Stative verbs** refer to ‘states’. A state has no beginning and no end. We

don’t ‘control’ it

## There are 3 cases of verbs:

* Dynamic verbs which have simple and continuous forms

*I often* ***listen*** *to music.*

*I’****m listening*** *to music now.*

* Verbs which are always stative

*She* ***loves*** *her baby.*

* Verbs that have stative and dynamic uses

*I’****m weighting*** *myself I* ***weight*** *80 kilos.*

1. Verbs of senses

*hear, see, smell, feel, notice, taste*

1. Verbs of feelings and emotions

*hate, like, dislike, love, need, prefer, want, wish, hope*

1. Verbs of mental activity

*believe, imagine, know, mean, realize, recognize, remember, suppose, understand, seem, expect, agree, doubt, forget, prefer*

1. Verbs of possession and being

*have, be, belong, concern, consist, contain, depend, involve, matter, need, owe, own, possess, cost, weight, come from*

## ПАСИВНИЙ СТАН

Пасивний стан ***Present Continuous*** утворюється за допомогою допоміжного дієслова **to be** в ***Present Continuous*** і ***Past Participle*** основного дієслова:

*І am being examined.*

*He (she, it) is being examined. We (you, they) are being examined.*

## The present continuous tense

*Am I being examined?*

*Is he (she, it) being examined?*

*Are we (you, they) being examined?*

* 1. *Put the verbs in brackets into the present continuous tense.*

1. She (not work), she (swim) in the river.
2. He (teach) his boy to ride.
3. The airplane (fly) at 2,000 metres.
4. Mrs Jones (sweep) the steps outside her house.
5. It is a lovely day. The sun (shine) and the birds (sing).
6. We (have) breakfast at 8.00 tomorrow as Tom (catch) an early train.
7. She always (ring) up and (ask) questions.
8. Ann usually does the shopping, but I (do) it today as she isn't well.
9. Mother (rest) now. She always rests after lunch.
10. The children are very quiet. Go and see what they (do). *-* They (cut) up some £5 notes.
11. I can't hear what you (say); the traffic (make) too much noise.
12. She always (lose) her glasses and (ask) me to look for them.
13. Can I borrow your pen or you (use) it at the moment?
14. It (rain)? ~Yes, it (rain) very hard. You can't go out yet.
15. Someone (knock) at the door. Shall I answer it? ~ I (come) in a minute. I just (wash) my hands.
16. You (do) anything this evening? ~ No, I'm not. – Well, I (go) to the cinema. Would you like to come with me?
17. What Tom (do) now? He (clean) his shoes.
18. Why Ann (not wear) her new dress?
19. Why you (mend) that old shirt?
20. You (not tell) the truth. ~ How do you know that I (not tell) the truth?
21. Who (move) the furniture about upstairs? ~ It's Tom. He (paint) the front bedroom.
22. What you (read) now? I (read) *Crime and Punishment.*
23. Why you (make) a cake? Someone (come) to tea?
24. Where is Tom? ~ He (lie) under the car.
25. Why you (type) so fast? You (make) a lot of mistakes.
26. They (dig) an enormous hole just outside my gate. ~ What they (do) that for? ~ I don't know. Perhaps they (look) for oil.
27. What (make) that terrible noise? ~ It's the pneumatic drill. They (repair) the road.
28. What you (wait) for? – I (wait) for my change; the boy just (get) it.
29. Mother: What you (look) at? Something (happen) in the street?
30. Child: Yes. The house opposite is on fire! Come and look. Mother: I can't. I (bath) the babies. Is the Fire Brigade here?
31. Child: Yes. Fire engines (rush) up and the firemen (jump) out and (unroll) their hoses.
32. Smoke (pour) from the windows! People (stop) to watch. A policeman (try) to move them on.
33. An old man (climb) out of a first floor window!

A fireman (help) him! Two boys (slide) down a rope!

1. A woman (wave) from the attic and a fireman (go) up a ladder to help her!
2. Now he (come) down again! He (carry) a baby! The crowd (cheer)

## The simple present and the present continuous

*8. Put the verbs in brackets into the simple present or the present continuous tense.*

1. Cuckoos (not build) nests. They (use) the nests of other birds.
2. You can't see Tom now: he (have) a bath.
3. He usually (drink) coffee but today he (drink) tea.
4. What she (do) in the evenings? ~ She usually (play) cards or (watch) TV.
5. I won't go out now as it (rain) and I (not have) an umbrella.
6. The last train (leave) the station at 11.30.
7. He usually (speak) so quickly that I (not understand) him.
8. Ann (make) a dress for herself at the moment. She (make) all her own clothes.
9. Hardly anyone (wear) a hat nowadays.
10. I'm afraid I've broken one of your coffee cups. ~ Don’t worry. I (not like) that set

anyway.

1. I (wear) my sunglasses today because the sun is very strong.
2. Tom can't have the newspaper now because his aunt (read) it.
3. I'm busy at the moment. I (redecorate) the sitting room.
4. The kettle (boil) now. Shall I make the tea?
5. You (enjoy) yourself or would you like to leave now? - I (enjoy) myself very much. I (want) to stay to the end.
6. How you (get) to work as a rule? ~ I usually (go) by bus but tomorrow I (go) in Tom's car.
7. Why you (put) on your coat? ~ I (go) for a walk. You (come) with me? - Yes, I'd love to come. You (mind) if I bring my dog?
8. How much you (owe) him? – I (owe) him £5. ~ You (intend) to pay him?
9. Mary usually (learn) languages very quickly but she (not seem) able to learn modern Greek.
10. I always (buy) lottery tickets but I never (win) anything.
11. You (like) this necklace? I (give) it to my daughter for her birthday tomorrow.
12. I won't tell you my secret unless you (promise) not to tell anyone. – I (promise).
13. You always (write) with your left hand?
14. You (love) him? – No, I (like) him very much but I (not love) him.
15. You (dream) at night? – Yes, I always (dream) and if I (eat) too much supper I (have) nightmares.
16. These workmen are never satisfied; they always (complain).
17. We (use) this room today because the window in the other room is broken.
18. This car (make) a very strange noise. You (think) it is all right?- Oh, that noise (not matter). It always (make) a noise like that.
19. What Tom (think) of the Budget? - He (think) it most unfair. ~ I (agree) with him.
20. What this one (cost)? – It (cost) forty pence.
21. You (hear) the wind? It (blow) very strongly tonight.
22. You (see) my car keys anywhere? - No, I (look) for them but I (not see) them.
23. He never (listen) to what you say. He always (think) about something else.
24. You (understand) what the lecturer is saying? ~ No, I (not understand) him at all.
25. What you (have) for breakfast usually? ~ I usually (eat) a carrot and (drink) a glass of cold water.
26. Why you (walk) so fast today? You usually (walk) quite slowly. ~ I (hurry) because I (meet) my mother at 4 o'clock and she (not like) to be kept waiting.
27. You (recognize) that man? ~ I (think) that I have seen him before but I (not remember) his name.
28. Look at that crowd. I (wonder) what they (wait) for.
29. Stop! You (not see) the notice? ~ I (see) it but I can't read it because I (not wear) my glasses.
30. She always (borrow) from me and she never (remember) to pay me back.
31. I (save) up because I (go) abroad in July.
32. I (think) it is a pity you don't take more exercise. You (get) fat.
33. Tom never (do) any work in the garden; he always (work) on his car.
34. That film (come) to the local cinema next week. You (want) to see it?
35. How Peter (get) on at school? ~ Very well. He (seem) to like the life.
36. This story is about a boy who (make) friends with a snake which he (find) in his garden. Then he (go) away but he (not forget) the snake and some years later he (return) and (look) for it. He (find) the snake who (recognize) its old friend and (coil) round him affectionately. But, unfortunately, the snake is by now a full- grown boa-constrictor and its embrace (kill) the poor boy. – The snake (feel) sorry about this? – I (not know). The story (end) there.
37. How you (end) a letter that (begin), 'Dear Sir'? ~ I always (put), 'Yours truly', but Tom (prefer) 'Yours faithfully'.
38. What the word 'catastrophe' (mean)? ~ It (mean) 'disaster'.
39. Who (own) this umbrella? ~ I (not know). Everybody (use) it but nobody (know) who (own) it.
40. You (mind) if I (ask) you a question? ~ That (depend) on the question. ~ It (concern) your brother. ~ I (refuse) to answer any question about my brother.

## Самостійна робота 5-6.

**МИНУЛИЙ ТРИВАЛИЙ ЧАС THE PAST CONTINUOUS TENSE УТВОРЕННЯ**

*Стверджувальна форма* дієслова в ***Past Continuous*** утворюється за

допомогою допоміжного дієслова **to be** в ***Past Simple*** і дієприкметника теперішнього часу ***(Present Participle)*** основного дієслова:

*І* ***was*** *mak****ing*** *you* ***were*** *mak****ing*** *he* ***was*** *mak****ing*** *she* ***was*** *mak****ing*** *it* ***was*** *mak****ing***

*we* ***were*** *mak****ing*** *you* ***were*** *mak****ing*** *they* ***were*** *mak****ing***

У *питальній формі* допоміжне дієслово ставиться перед підметом:

*What* ***were*** *you telling him?*

У *заперечній формі* після допоміжного дієслова вживається заперечна частка **not:**

*І w****as not*** *watching TV in the evening.*

У розмовній мові в заперечній і питально-заперечній формах замість

**was not** і **were not** вживаються переважно скорочені форми **wasn't** і **weren't:**

*Не* ***wasn't*** *coming.* ***Wasn't*** *he coming? They* ***weren't*** *coming.* ***Weren't*** *they coming?* **ВЖИВАННЯ**

***Past Continuous*** вживається для вираження:

* 1. дії, що відбувалася, тривала в певний момент у минулому. На час дії звичайно вказують обставинні слова типу **at two o'clock, at midnight, at that moment** або підрядні з дієсловом присудком у ***Past Simple***:

*Не was working at his English* ***at that time****. She was sitting by the window*

### when he came in.

* 1. дії, що тривала протягом якогось часу в минулому: *In spring he was visiting his old school-fellow.* **ПАСИВНИЙ СТАН**

Пасивний стан ***Past Continuous*** утворюється за допомогою допоміжного дієслова **to be** в ***Past Continuous*** і ***Past Participle*** основного дієслова:

*І (he, she, it) was being examined. We (you, they) were being examined.*

*Питальна і заперечна форми* утворюються таким чином:

***Was*** *he being taught? He* ***was not*** *being taught.*

***Were*** *they being taught? They* ***were not*** *being taught.*

## The past continuous tense

*9. Put the verbs in brackets into the past continuous tense.*

1. Detective: I'm afraid I must ask you both what you (do) yesterday at 10.20 p.m. Mr X: I (play) chess with my wife. Mr Y: I (listen) to a play on the radio.
2. The children were frightened because it (get) dark.
3. It was a fine day and the roads were crowded because a lot of people (rush) to the seaside.
4. He usually wears sandals but when I last saw him he (wear) boots.
5. The house was in great disorder because he (redecorate) it.
6. The director didn't allow the actors to travel by air while they (work) on the film.
7. The car had nobody in it but the engine (run).
8. I was alone in the house at that time because Mr Jones (work) in the garage and Mrs Jones (shop).
9. Are you going to Rome? I thought that you (go) to Milan.
10. My wife and I (talk) about you the other day.
11. When I first met him he (study) painting.
12. There was a strong smell and the sound of frying. Obviously Mrs Jones (cook) fish.
13. Tom ate nothing for lunch because he (diet). He said that he (try) to lose 10 kilos.
14. Who you (talk) to on the telephone as I came in? – I (talk) to Mr Pitt.
15. When I first met him he (work) in a restaurant.
16. He watched the children for a moment. Some of them (bathe) in the sea, others (look) for shells, others (play) in the sand.
17. She (stand) at the bus stop. I asked her what bus she (wait) for.
18. From the sounds it was clear that Mary (practise) the piano.
19. Tom (sit) in a corner with a book. I told him that he (read) in very bad light.
20. The traffic (make) so much noise that I couldn't hear what he (say).

## The simple past and the past continuous

*10. Put the verbs in brackets into the simple past or the past continuous tense.*

1. I lit the fire at 6.00 and it (burn) brightly when Tom came in at 7.00.
2. When I arrived the lecture had already started and the professor (write) on the overhead projector.
3. I (make) a cake when the light went out. I had to finish it in the dark.
4. Unfortunately when I arrived Ann just (leave), so we only had time for a few words.
5. He (watch) TV when the phone rang. Very unwillingly he (turn) down the sound and (go) to answer it.
6. He was very polite. Whenever his wife entered the room he (stand) up.
7. My dog (walk) along quietly when Mr Pitt's Pekinese attacked him.
8. What you (think) of his last book? ~ I (like) it very much.
9. He suddenly (realize) that he (travel) in the wrong direction.
10. He (play) the guitar outside her house when someone opened the window and (throw) out a bucket of water.
11. I just (open) the letter when the wind (blow) it out of my hand.
12. When I (look) for my passport I (find) this old photograph.
13. The boys (play) cards when they (hear) their father's step. They immediately (hide) the cards and (take) out their lesson books.
14. He (clean) his gun when it accidentally (go) off and (kill) him.
15. As I (cross) the road I (step) on a banana skin and (fall) heavily.
16. I still (lie) on the road when I (see) a lorry approaching.
17. Luckily the driver (see) me and (stop) the lorry in time.
18. When I (hear) his knock I (go) to the door and (open) it, but I (not recognize) him at first because I (not wear) my glasses.
19. While the guests (dance) thieves (break) into the house and (steal) a lot of fur coats.
20. The next day, as they (know) that the police (look) for them, they (hide) the coats

in a wood and (go) off in different directions.

## Самостійна робота 7-8.

**МАЙБУТНІЙ ТРИВАЛИЙ ЧАС**

**THE FUTURE CONTINUOUS TENSE**

**УТВОРЕННЯ**

*Стверджувальна форма* ***Future Continuous*** утворюється за допомогою допоміжного дієслова **to be** у ***Future Simple*** та дієприкметника теперішнього часу ***(Present Participle)*** основного дієслова:

*І* ***shall be*** *translat****ing*** *you* ***will be*** *translat****ing*** *he* ***will be*** *translat****ing*** *she* ***will be*** *translat****ing***

*we* ***shall be*** *translat****ing*** *you* ***will be*** *translat****ing*** *they* ***will be*** *translat****ing***

У *питальній формі* допоміжне дієслово **shall** або **will** ставиться перед підметом:

***Will*** *they be studying?* ***Shall*** *we be training?*

У *заперечній формі* після допоміжного дієслова **shall** або **will**

вживається заперечна частка **not:**

*They* ***will not*** *be leaving for Kyiv. I* ***shall not*** *be painting.*

У розмовній мові замість **shall** і **will** вживається скорочення **’ll**, а замість **shall not** і **will not — shan’t** і **won't.**

## ВЖИВАННЯ

***Future Continuous*** вживається для вираження тривалої дії, що відбуватиметься в якийсь момент або період часу в майбутньому:

## I'll be looking out for you at two o'clock. We'll be playing all morning.

**The future continuous and the future simple**

*11. Put the verbs in brackets into the future continuous tense.*

1. This time next month I (sit) on a beach.
2. When you arrive I probably (pick) fruit.
3. I'll call for her at eight. *-* No, don't; she still (have) breakfast then.
4. I (wait) for you when you come out.
5. When you next see me I (wear) my new dress.
6. I'll give Jack your message. I can do it easily because I (see) him tomorrow. We go to work on the same train.
7. You (do) geometry next term.
8. I'll look out for you at the parade. - Do, but I (wear) uniform so you may find it hard to recognize me.
9. We have to do night duty here. I (do) mine next week.
10. In a hundred years' time people (go) to Mars for their holidays.
11. He (use) the car this afternoon.
12. I (see) you again.
13. It's a serious injury but he (walk) again in six weeks.
14. I'll come at three o'clock. - Good, I (expect) you.
15. You'd better go back now; your mother (wonder) where you are.
16. In fifty years" time we (live) entirely on pills.
17. What do you think the children (do) when we get home? - I expect they (have) their supper.
18. The garden (look) its best next month.
19. I've just remembered that I left the bathroom taps on. I expect the water (flow) down the stairs by now.
20. You (need) your camera tomorrow or can I borrow it?
21. We've just got to the top in time. The sun (rise) in a minute.
22. Air hostess: We (take off) in a few minutes. Please fasten your safety belts.
23. We'd better go out tomorrow because Mary (practise) the piano all day.
24. Don't ring her up at 6.00; she (put) the children to bed. Ring later.
25. When I get home my dog (sit) at the door waiting for me.

*12. Put the verbs in brackets into the appropriate future form (continuous or simple)*

1. There is going to be a bus strike. Everyone (walk) to work next week.
2. You've just missed the last train! – Never mind, I (walk).
3. I'll ring you tomorrow at six. – No, don't ring at six; I (bath) the baby then. Ring later.
4. Mother: Your face is dirty. – Child: All right, I (wash) it.
5. Will you have lunch with me on the 24th? – I'd love to, but I'm afraid I (do) my exam then.
6. I (work) for Mr Pitt next week as his own secretary will be away.
7. You (have) something to drink, won't you?
8. Why did you take his razor? He (look) for it everywhere tomorrow.
9. I hope you'll do well in the race tomorrow. I (think) of you.
10. Notice on board ship: In the event of an emergency all passengers (assemble) on the boat deck.
11. I don't feel well enough to go to the station to meet him. ~ I (meet) him for you.

But how I (recognize) him? – He's small and fair, and he (wear) a black and white school cap.

1. I (leave) these flowers at the hospital for you. I (go) there anyway to visit my cousin.
2. You ought to try to get a ticket for the Spectators' Gallery next week; they (debate) international fishing rights.
3. You've left the light on. – Oh, so I have. I (go) and turn it off.
4. I've just been appointed assistant at the local library. – Then you (work) under my sister. She is head librarian there.
5. I want to post this letter but I don't want to go out in the rain. - I (post) it for you. I (go) out anyway as I have to take the dog for a walk.
6. The prima ballerina is ill so I expect her understudy (dance) instead.
7. This time next Monday I (sit) in a Paris cafe reading *Le Figaro. –* You (not read). You'll be looking at all the pretty girls.
8. Wages have gone up, so I suppose prices (go up) too.
9. It is nearly autumn; soon the leaves (change) colour.
10. Mother (on phone): My son has just burnt his hand very badly. – Doctor: I (come) at once.
11. Customer in restaurant: Waiter, this plate is dirty. – Waiter: I'm sorry, sir, I

(bring) you another.

1. In a few years' time we all (live) in houses heated by solar energy.
2. It's beginning to get dark; the street lights (go on) in a few minutes.
3. We (not play) poker at the party tonight; our hostess doesn't approve of cards.
4. Let's wait here; the swing bridge (open) in a minute to let that ship through.
5. Guest: May I use your phone to ring for a taxi? - Hostess: Oh, there's no need for that; my son (drive) you home.
6. Are you nearly ready? Our guests (arrive) any minute.
7. Now that the parking regulations have become stricter, more people (use) public transport and (leave) their cars at home.
8. I'm afraid I've just broken your goldfish bowl. - Never mind, I (put) the goldfish in the bath.

## Самостійна робота 9-10.

**ТЕПЕРІШНІЙ ЗАВЕРШЕНИЙ ЧАС THE PRESENT PERFECT TENSE УТВОРЕННЯ**

**Present Perfect** утворюється за допомогою допоміжного дієслова **to have** у ***Present Simple*** і дієприкметника минулого часу ***(Past Participle)*** основного дієслова.

***Past Participle*** правильних дієслів утворюється додаванням до інфінітива закінчення **-ed**, тобто за формою **Past Participle** правильних дієслів не відрізняється від ***Past Simple***:

*І/we/you/they have discuss****ed***

*He/she has discuss****ed***

У розмовній мові вживаються переважно скорочені форми:

***I've*** *worked.* ***He's*** *worked.* ***We've*** *worked.*

У *питальній формі* допоміжне дієслово ставиться перед підметом:

***Have*** *you ever lived in a village?* ***Has*** *she congratulated him?*

У *заперечній формі* після допоміжного дієслова вживається заперечна частка **not:**

*My friend* ***has not*** *come yet. We* ***have not*** *discussed it.*

У розмовній мові замість **have not** i **has not** вживаються скорочені форми **haven't, hasn't** або **'ve not, 's not:**

*I****’ve not*** *done anything. You* ***haven't*** *changed much. He****'s not*** *come yet.*

У питально-заперечних реченнях вживаються скорочені форми **haven't**

і **hasn't,** які ставляться перед підметом:

***Hasn'****t he been to Paris? Why* ***haven't*** *you put on your coat?*

## ВЖИВАННЯ

**Present Perfect** вживається для вираження дії, яка відбулася до моменту мовлення, і результат цієї минулої дії пов'язаний з цим моментом:

*І have locked the door. Have you turned off the gas?*

Час дії, вираженої дієсловом у **Present Perfect**, здебільшого не зазначається, тому що в центрі уваги результат дії, а не час її перебігу:

*What have they done? You have read more than me.*

часу:

**Present Perfect** вживається також у реченнях з такими обставинами

а) що означають період часу, який почався в минулому і тривав до

моменту мовлення: **up to now, up to the present** – до цього часу; **lately** – нещодавно, останнім часом; **recently** – останнім часом; **so far** – до цього часу; **since** – відтоді; **not yet** – ще не:

*Up to now we have done three exercises. Have you seen them recently?*

*Have you heard from your sister lately?*

б) що означають період часу, який ще не закінчився: **today** – сьогодні; **this week** – цього тижня; **this month** – цього місяця; **this year** – цього року; **this morning** – сьогодні вранці:

*Have you seen her today? Has he visited a dentist this month?*

З цими обставинами часу вживається також Past Indefinite, якщо в реченні є слова, які вказують на дію в минулому:

*A letter came from them today when he was at work.*

в) з прислівниками неозначеного часу і частотності: **ever** – коли- небудь; **never** – ніколи; **often** – часто; **seldom** – рідко; **already** – вже; **just** – щойно:

*Have you ever thought about it? I've often heard him tell the tale. We've just arrived.*

З цими прислівниками вживається також ***Past Simple***:

*I told you already. I never saw him in my life.*

***Present Perfect*** не вживається з обставинними словами та словосполученнями, які уточнюють час минулої дії: **yesterday** – вчора; **last week** – минулого тижня тощо:

*She went yesterday. When did you see him?*

***Present Perfect*** вживається для вираження дії або стану, що триває з якогось моменту в минулому до моменту мовлення. У цьому значенні ***Present Perfect*** вживається переважно з дієсловами, що не мають форми ***Continuous***:

*І have known her for years.*

*I have not seen you for a whole month.*

## ПАСИВНИЙ СТАН

Пасивний стан ***Present Perfect*** утворюється за допомогою допоміжного дієслова **to be** в ***Present Perfect*** і ***Past Participle*** основного дієслова:

*І have been examined you have been examined he has been examined she has been examined it has been examined*

## The present perfect tense

*we have been examined you have been examined they have been examined*

*13. Put the verbs in brackets into the present perfect tense, and fill the spaces by repeating the auxiliary.*

1. Where you (be)? ~ I (be) to the dentist.
2. You (have) breakfast? ~ Yes, I …
3. The post (come)? ~ Yes, it …
4. You (see) my watch anywhere? ~ No, I'm afraid I …
5. I (not finish) my letter yet.
6. He just (go) out.
7. Someone (take) my bicycle.
8. The phone (stop) ringing.
9. You (hear) from her lately? - No, I …
10. I just (wash) that floor.
11. The cat (steal) the fish.
12. There aren't any buses because the drivers (go) on strike.
13. Charles (pass) his exam? ~ Yes, he …
14. How many bottles the milkman (leave)? ~ He (leave) six.
15. I (live) here for ten years.
16. How long you (know) Mr Pitt? ~ I (know) him for ten years.
17. Would you like some coffee? I just (make) some.
18. Mary (water) the tomatoes? ~ Yes, I think she …
19. You ever (leave) a restaurant without paying the bill? ~ No, I …
20. I (ask) him to dinner several times.
21. He always (refuse).
22. You ever (ride) a camel?
23. I (buy) a new carpet. Come and look at it.
24. He (post) the letter?
25. I often (see) him but I never (speak) to him.
26. You ever (eat) caviar? ~ No, I …
27. We just (hear) the most extraordinary news.
28. I (not pay) the telephone bill yet.

## The present perfect and the simple past

*14. Put the verbs in brackets into the present perfect or the simple past tense.*

1. This is my house. ~ How long you (live) here? ~ I (live) here since 1990.
2. He (live) in London for two years and then (go) to Edinburgh.
3. Shakespeare (write) a lot of plays.
4. My brother (write) several plays. He just (finish) his second tragedy.
5. I (fly) over Loch Ness last week. ~ You (see) the Loch Ness monster?
6. I (not see) him for three years. I wonder where he is.
7. He (not smoke) for two weeks. He is trying to give it up.
8. When he (arrive)? ~ He (arrive) at 2.00.
9. I can't go out because I (not finish) my work.
10. I never (drink) whisky. ~ Well, have some now.
11. I (write) the letter but I can't find a stamp.
12. The clock is slow. ~ It isn't slow, it (stop).
13. Here are your shoes; I just (clean) them.
14. I (leave) home at 8.00 and (get) here at twelve.
15. I (do) this sort of work when I (be) an apprentice.
16. He just (go) out.
17. He (go) out ten minutes ago.
18. You (have) breakfast yet? ~ Yes, I (have) it at 8.00.
19. I (meet) him last June.
20. You (see) the moon last night?
21. The play just (begin). You are a little late.
22. The newspaper (come)? ~ Yes, Ann is reading it.
23. We (miss) the bus. Now we'll have to walk.
24. Mr Pound is the bank manager. He (be) here for five years.
25. Mr Count (work) as a cashier for twenty-five years. Then he (retire) and (go) to live in the country.

## Самостійна робота 11-12.

**МИНУЛИЙ ЗАВЕРШЕНИЙ ЧАС THE PAST PERFECT TENSE УТВОРЕННЯ**

***Past Perfect*** утворюється за допомогою допоміжного дієслова **to have** в ***Past Simple*** і дієприкметника минулого часу ***(Past Participle)*** основного дієслова. Дієслова в ***Past Perfect*** не змінюються за особами й числами:

*І (she, he, it, we, you, they)* ***had*** *bak****ed****.*

У розмовній мові замість **had** вживається скорочена форма **'d**, яка на письмі приєднується до підмета:

*I****'d*** *(he****'d****, she****'d****, we****'d****, you****'d****, they****'d****) cooked.*

У *питальній формі* допоміжне дієслово ставиться перед підметом:

***Had*** *you helped?*

У *заперечній формі* після допоміжного дієслова вживається заперечна частка **not:**

*І had* ***not*** *ordered.*

У розмовній мові в заперечній і питально-заперечній формах вживається скорочена форма **hadn't:**

*Не* ***hadn't*** *required.* ***Hadn't*** *he required?*

## ВЖИВАННЯ

**Past Perfect** вживається для вираження:

* 1. дії, яка відбулася раніше іншої минулої дії, позначеної дієсловом у ***Past Simple:***

*І told you I had met her.*

* 1. минулої дії, що вже закінчилася до певного моменту в минулому. Цей момент позначається такими словосполученнями: **by two o'clock** – до другої години, **by that time** – до того часу тощо:

*І had done my homework by eight o'clock.*

Заперечна форма ***Past Perfect*** вказує на те, що до певного моменту в минулому дія ще не закінчилася:

*І had not read the book by that time.*

* 1. дії, що почалася до певного моменту в минулому і тривала до цього моменту. У цьому значенні ***Past Perfect*** вживається переважно з дієсловами, які не мають форми ***Continuous***:

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

## ПАСИВНИЙ СТАН

Пасивний стан ***Past Perfect*** утворюється за допомогою допоміжного дієслова **to be** в ***Past Perfect*** і ***Past Participle*** основного дієслова:

*І (he, she, it, we, you, they)* ***had been*** *examin****ed****.*

У *питальній формі* допоміжне дієслово ставиться перед підметом:

***Had*** *he been examined?*

У *заперечній формі* після допоміжного дієслова **had** ставиться заперечна частка **not:**

*Не* ***had not*** *been examined.*

Put the verbs in brackets into the correct tense.

1. He (give) me back the book, (thank) me for lending it to him and (say) that he (enjoy) it very much; but I (know) that he (not read) it because most of the pages (be) still uncut.
2. When he (see) his wife off at the station, he (return) home as he (no have) to be at the airport till 9.30.
3. He (not have) to pack, for his wife already (do) that for him and his case (be) ready

in the hall.

1. He (not have) to check the doors and windows either, for his *wife* always (do) that before she (leave) the house.
2. All he (have) to do (be) to decide whether or not to take his overcoat with him. In the end he (decide) not to.
3. At 8.30 he (pick) up his case, (go) out of the house and (slam) the door behind him.
4. Then he (feel) in his pockets for the key, for his wife (remind) him to double-lock the front door.
5. When he (search) all his pockets and (find) no key he (remember) where it (be). 9 He (leave) it in his overcoat pocket.

10 Then he (remember) something else; his passport and tickets (be) in his overcoat pocket as well.

1. I (arrive) in England in the middle of July. I (be told) that England (be) shrouded in fog all year round, so I (be) quite surprised to find that it was merely raining.
2. I (ask) another passenger, an Englishman, about the fog and he (say) that there (not be) any since the previous February.
3. If I (want) fog, he said, I (come) at quite the wrong time.
4. However, he (tell) me that I could buy tinned fog at a shop in Shaftesbury Avenue. 15 He (admit) that he never (buy) fog there himself but (assure) me that they (sell)

good quality fog and that it (not be) expensive. I suppose he was joking.

1. When the old lady (return) to her flat she (see) at once that burglars (break) in during her absence, because the front door (be) open and everything in the flat (be) upside down.
2. The burglars themselves (be) no longer there, but they probably only just (leave) because a cigarette was still burning on an ornamental table.
3. Probably

they (hear) the lift coming up and (run) down the fire escape.

1. They (help) themselves to her whisky too but there (be) a little left, so she (pour) herself out a drink.
2. She (wonder) if they (find) her jewellery and rather (hope) that they had. 21 The jewellery (be given) her by her husband, who (die) some years before.
3. Since his death she (not have) the heart to wear it, yet she (not like) to sell it.
4. Now it (seem) that fate (take) the matter out of her hands; and certainly the insurance money would come in handy.
5. I (put) the £5 note into one of my books; but next day it (take) me ages to find it because I (forget) which book I (put) it into.
6. A woman (come) in with a baby, who she (say) just (swallow) a safety pin.
7. I (think) my train (leave) at 14.33, and (be) very disappointed when I (arrive) at

14.30 and (learn) that it just (leave).

1. I (find) later that I (use) an out-of-date timetable.
2. He (park) his car under a No Parking sign and (rush) into the shop. When he (come) out of the shop ten minutes later the car (be) no longer there.
3. He (wonder) if someone (steal) it or if the police (drive) it away.
4. It (be) now 6 p.m.; and Jack (be) tired because he (work) hard all day. 31 He (be) also hungry because he (have) nothing to eat since breakfast.
5. His wife usually (bring) him sandwiches at lunch time, but today for some reason she (not come).
6. He (keep) looking at her, wondering where he (see) her before.
7. I (look) out before I (go) to bed and (see) a man standing on the opposite pavement watching the house.
8. When I (get up) the following morning he (be) still there, and I (wonder) whether

he (stay) there all night or if he (go) away and (come) back.

1. When I (open) the door I (see) a man on his knees.
2. He clearly (listen) to our conversation and I (wonder) how much he (hear).
3. When I (ask) him what he (do), he (say) that he (drop) a 50p piece outside the door and (look) for it.
4. I (not see) any sign of the money, but I (find) a small notebook and pencil which he probably (drop) when the door (open) suddenly.
5. So he (take) notes of our conversation!
6. The notes (be) written in a foreign language, so I (turn) to the stranger and (ask) him to translate.
7. But he (pull) m hat over my eyes and (run) off down the corridor.
8. By the time I (recover) from the shock he (disappear) round the corner.
9. Curiously enough, when I (move) my foot I (find) that I (stand) on a 50p piece. 45 Perhaps he (tell) the truth after all!

**ЗАВДАННЯ ДЛЯ ПОТОЧНОГО ТА ПІДСУМКОВОГО КОНТРОЛЮ**

**ЗНАНЬ І ВМІНЬ З НАВЧАЛЬНОЇ ДИСЦИПЛІНИ.**

## Конрольна робота 1

## Variant 1

**Choose the correct answer**

* + 1. **General vocabulary**

1. New Orleans is suffering from strong wind and heavy\_\_\_\_.

a) sun b) moon c) rain d) cloud e) globe

1. Her husband is very\_\_\_. He makes breakfast for children when she is busy.

a) Clever b) intelligent c) handsome d) helpful e) late

1. Women \_\_\_\_the children while men go out to work.

a) encourage b) think c) look after d) develop e) remember

1. There are two types of \_\_\_\_, the African and the Indian, but they both have big ears.

a) lions b) monkeys c) bears d) elephants e) fish

|  |  |  |  |
| --- | --- | --- | --- |
| 5. Your \_\_\_\_ are cold! You sho  a) arms b) legs | uld wear gloves  c) hands | d) hairs | e) eyes |
|  | **2. Grammar** |  |  |
| 1. It … a lot in Britain.  а) rain b) rains | c) is rain | d) rainy | e) are rain |

1. At six o’clock I … for Jennie at the station.

a) waited b) wait c) waites d) was waiting e) had waited

1. They … an electric car.

а) never drive b) never have drive c) have never driven

d) drives never e) never drived

1. This is a school … I used to study

a) whose b) which c) where d) that e) who

1. At the conference we met … people whom we knew well.

a) much b) a few c) little d) a little e) a

## 3. Language for Special Purposes

1. Biology is the science of
2. living things
3. animals
4. Physiology is the study of
5. plants
6. fungi
7. algae
8. the functions of living beings.
9. the structure and function of cells.
10. the biological processes on a molecular level.
11. genes formed by segments of DNA and RNA.
12. the relationship of living beings on the planet with their natural habitat.
13. Ecology is the branch of biology that is responsible for studying
14. the functions of living beings.
15. the structure and function of cells.
16. the biological processes on a molecular level.
17. genes formed by segments of DNA and RNA.
18. the relationship of living beings on the planet with their natural habitat.
19. The process by which living things produce new living things of the same kind

a) respiration b) digestion c) assimilation

d) growth e) reproduction

1. The process by which smaller, simple substances are combined chemically to form larger, more complex substances
2. synthesis
3. growth
4. reproduction
5. respiration
6. transportation
7. Which of the following would you NOT find in a bacterial cell?
8. DNA
9. cell membrane
10. golgi apparatus
11. ribosomes
12. plasmids
13. What part of the cell makes proteins?
14. ribosomes
15. mitochondria
16. lysosomes
17. vacuole
18. plasmids
19. Which of the following is biotic factor in an ecosystem?
20. bacteria
21. soil
22. temperature
23. rainfall
24. sunlight
25. ***\_\_\_\_\_*** is the way of living that meets the needs of the present without compromising the ability of future generations to meet their own needs.
26. Evolution
27. Global warming
28. Greenhouse effect
29. Climate change
30. Sustainable

development

1. Carolus Linneus was born in
2. Sweden
3. England
4. Germany
5. Ukraine
6. France

## Variant 2

**Choose the correct answer**

* 1. **General vocabulary**

1. The minister has developed a plan to \_\_\_\_ people to have more children.

a) encourage b) invite c) think d) manage e) feel

1. She is very \_\_\_\_\_\_\_. She often works late.

a) hard-working b) noisy c) clever d) easy e) polite

1. A \_\_\_\_\_ is a computer that you can easily carry.

a) chair b) TV c) laptop d) copy-book e) software

1. Humans need to change their lifestyle in order to\_\_\_\_ .

a) consume b) survive c) damage d) plan e) support

1. The \_\_\_\_ is never hungry because he can eat the highest leaves.

a) hare b) giraffe c) tiger d) snake e) human

## 2. Grammar

1. We … David in town a few days ago.

а) did see b) was saw c) did see d) was see e) saw

1. He … when the phone rang.

a) was sleeping b) were sleeping c) sleeped d) slept e) sleeps

1. This is the girl … comes from Spain

a) that b) whose c) who d) what e) which

1. Do you know \_\_\_\_\_\_ good Italian search engine?

a**)** an b) - c) this d) the e) a

1. If you have … spare time, look through this book.

a) many b) a few c) a little d) few e) fewer

## 3. Language for Special Purposes

1. Cellular biology or cytology is the branch of biology which studies
2. the structure and function of cells.
3. the biological processes on a molecular level.
4. the development of living organisms from birth until death.
5. genes formed by segments of DNA and RNA.
6. the relationship of living beings on the planet with their natural habitat.
7. Genetics is a branch of biology that studies
8. biological heritage which is transmitted from generation to generation.
9. the relationship of living beings on the planet with their natural habitat.
10. the functions of living beings.
11. animal life.
12. the plant world.
13. Microbiology, a science or branch of biology that focuses on the study of
14. microorganisms, which are the smallest living things.
15. the relationship of living beings on the planet with their natural habitat.
16. the functions of living beings.
17. animal life.
18. the plant world.
19. Breaking down food into nutrients, which the body uses for energy, growth, and cell repair.
20. respiration
21. digestion
22. Biology is the study of
23. minerals
24. weather
25. homeostasis
26. growth
27. life
28. energy
29. reproduction
30. soil
31. What part of the cell makes proteins?
32. ribosomes
33. mitochondria
34. lysosomes
35. vacuole
36. plasmids
37. The first man, who made and used microscope was
38. Plato
39. Carolus Linneus
40. Charles Darwin
41. Anthony van Leeuwenhoek
42. Aristotle
43. Nonrenewable resource is
44. biofuel
45. fossil fuels
46. hydropower
47. wind energy
48. sun energy
49. Which of the following does NOT refer to the phylum Mollusca?
50. spider
51. oyster
52. snail
53. squid
54. octopus
55. Which of the following is NOT a meat-eating animal?
56. tiger
57. polar bear
58. eagle
59. wolf
60. panda

## Variant 3

**Choose the correct answer**

* 1. **General vocabulary**

1. After two cold, dry winters and experiencing a serious drought.

\_\_\_\_ summers, the south-east of England is

* 1. black b) hot c) risky d) clever e) blue

1. You are very \_\_\_\_. Thank you for your help.
   1. busy b) kind c) worried d) shy e) blue
2. Children cannot stay out late without \_\_\_\_ .
   1. permission b) work c) TVset d) plan e) pocket money
3. This person has to use the telephone all the time.
   1. teacher b) engineer c) baker d) call-centre worker e) cleaner
4. I look \_\_\_\_\_ my mother; we have the same eyes and nose
   1. as b) like c) at d) to e) on

## 2. Grammar

1. Petra started at a factory last week. … factory is very new.

a) a b) an c) the d) - e) these

1. While my son …. for my call, somebody knocked at the door.

a) waits b) was waiting c) waited d) has waited e) wait

1. Your brother … tennis very well.

а) play b) plays c) is play d) are play e) playing

1. I have bought a computer, … is more expensive than this one.

a) who b) which c) what d) where e) whose

1. Sleeping pills are as … as warm milk and honey if you can’t fall asleep at night.

a) better b) good c) best d) gooder e) goodest

## 3. Language for Special Purposes

1. Molecular biology is the discipline which studies
2. the structure and function of cells.
3. the biological processes on the molecular level.
4. the development of living organisms from birth until death.
5. genes formed by segments of DNA and RNA.
6. the relationship of living beings on the planet with their natural habitat.
7. Zoology is the discipline responsible for study of
8. biological heritage which is transmitted from generation to generation.
9. the relationship of living beings on the planet with their natural habitat.
10. the functions of living beings.
11. animal life.
12. the plant world.
13. Genetics is a branch of biology that studies
14. the functions of living beings.
15. the structure and function of cells.
16. the biological processes on a molecular level.
17. genes formed by segments of DNA and RNA.
18. the relationship of living beings on the planet with their natural habitat.
19. The movement of oxygen from the outside air to the cells within tissues, and the transport of carbon dioxide in the opposite direction.

a) respiration b) digestion c) assimilation

d) growth e) reproduction

1. Carbon can form \_\_\_ separate bonds with other elements.
2. 1
3. 2
4. 3
5. 4
6. 5
7. Which of the following would you NOT find in a bacterial cell?
8. DNA
9. cell membrane
10. golgi apparatus
11. ribosomes
12. plasmids
13. Which of the following does NOT refer to the phylum Mollusca?
14. spider
15. oyster
16. snail
17. squid
18. octopus
19. The current classification system was developed by:
20. Aristotle
21. Plato
22. Carolus Linneus
23. Charles Darwin
24. Anthony van Leeuwenhoek
25. The process in which weather patterns are changing around the world is
26. Global warming
27. Greenhouse effect
28. Climate change
29. Evolution
30. Ice melting
31. The author of "The Origin of Species by Means of Natural Selection" is
32. Aristotle
33. Plato
34. Carolus Linneus
35. Charles Darwin
36. Anthony van Leeuwenhoek

## Variant 4

**Choose the correct answer**

* 1. **General vocabulary**

1. In my home city we do not have many days when the \_\_\_\_\_\_ is really nice, sunny and not raining.

a) planet b) people c) weather d) cloud e) iceberg

1. He listens to the \_\_\_\_\_ when he is doing other things

a) computer b) bicycle c) radio d) magazine e) tablet

1. This is a country of amazing \_\_\_\_: blue lakes and lagoons, fast rivers and waterfalls.

a) mountains b) landscapes c) shades d) looks e) plans

1. I feel very \_\_\_\_ with new people.

a) unkind b) uncomfortable c) lucky d) hopeless e) unfair

1. Dan's so \_\_\_\_\_ . He pays for everything when we go out

a) lazy b) mean c) generous d) patient e) shy

## 2. Grammar

1. The film wasn't very good. I … it very much.

а) enjoyed b) wasn’t enjoy c) didn’t enjoyed d) didn’t enjoy e) enjoying

c) more comfortable

b) most comfortable

e) comfortable

a) comfortabler

d) the most comfortable

3. This armchair is …than that armchair.

e) which

2. Thank you very much for your e-mail … was very interesting

a) what b) whose c) who d) what

1. She gave him … water to wash his hands and face.

a) many b) few c) a few d) a little e) a

1. When I arrived, they … tennis.

a) were playing b) play c) played d) plays e) would play

## 3. Language for Special Purposes

1. Developmental biology is the branch of biology that studies
2. the structure and function of cells.
3. the biological processes on a molecular level.
4. the development of living organisms from birth until death.
5. genes formed by segments of DNA and RNA.
6. the relationship of living beings on the planet with their natural habitat.
7. Botany, the discipline of biology that deals directly with
8. biological heritage which is transmitted from generation to generation.
9. the relationship of living beings on the planet with their natural habitat.
10. the functions of living beings.
11. animal life.
12. the plant world.
13. The process by which living things increase in size or cell number
    1. respiration
    2. digestion
    3. assimilation
    4. growth
    5. reproduction
14. The process by which an organism's metabolic activities are in a state of balance (body temperature, blood sugar levels etc.)
15. respiration
16. digestion
17. homeostasis
18. growth
19. reproduction
20. The smallest unit capable of carrying out life functions is
21. a cell
22. tissue
23. DNA
24. blood
25. an organ
26. What part of the cell makes proteins?
27. ribosomes
28. mitochondria
29. lysosomes
30. vacuole
31. plasmids
32. Which of the following is biotic factor in an ecosystem?
33. bacteria
34. soil
35. temperature
36. rainfall
37. sunlight
38. A very fast increase in the average temperature of the Earth’s air and oceans is
39. Global warming
40. Greenhouse effect
41. Climate change
42. Evolution
43. Ice melting
44. The scientific theory of evolution was formulated by
45. Aristotle
46. Charles Darwin
47. Plato
48. Carolus Linneus
49. Anthony van Leeuwenhoek
50. Which of the following is NOT a meat-eating animal?
51. tiger
52. polar bear
53. eagle
54. wolf
55. pand

**Контрольна робота 2**

*Варіант І*

## Choose the word to describe the weather.

1. I can’t see anything.

**a.** cloudy **b.** humid **c.** foggy

1. The snow is very bad and it’s very windy.

**a.** blizzard **b.** foggy **c.** thunderstorm

1. There’s no water to drink.

**a.** hurricane **b.** drought **c.** windy

1. No blue skies today.

**a.** windy **b.** cloudy **c.** humid

## Do these time expressions use the present simple or the present continuous?

1. usually **a.** the present simple **b.** the present continuous
2. always **a.** the present simple **b.** the present continuous
3. currently **a.** the present simple **b.** the present continuous
4. sometimes **a.** the present simple **b.** the present continuous

## Write the verb in brackets in the correct tense. Use Present Simple or Present Continuous.

1. In India, most rain usually (fall) in the summer month.

**a.** falls **b.** fall **c.** is falling

1. The streets (be) usually busy at this time of the day, but today they (be) empty.

**a.** are **b.** is **c.** am

1. Scientists (use) the data from weather stations to make weather forecasts.

**a.** are using **b.** use **c.** using

1. Thousands of people (wait) for help at the moment.

**a.** is waiting **b.** wait **c.** are waiting

1. The number of strong hurricanes (increase) currently.

**a.** is increasing **b.** increases **c.** increasing

1. It (not rain) now. Let’s go for a walk.

**a.** doesn’t rain **b.** don’t raining **c.** isn’t raining

## 4. Choose the most suitable word or phrase for each space

1. ‘Someone ..... for you outside.’ ‘Who is it?’

A) waits B) is waiting C) waiting

1. ‘What ..... of this book?’ ‘I think it’s fantastic!’

A) do you think B) is you think C) you do think

1. ..... in ghosts?

A) Are you believe B) Are you believing C) Do you believe

1. Kate is busy. She ..... for a test.

A) is study B) is studying C) is studies

1. What time ..... to bed?

A) usually do you go B) do usually you go C) do you usually go

1. ..... a great time at the moment!

A) We are have B) We’re have C) We’re having

## Контрольна робота 2

## *Варіант ІI*

## Choose the word to describe the weather.

1. No blue skies today.

**a.** windy **b.** cloudy **c.** humid

1. The rain closes the roads.

**a.** drought **b.** hurricane **c.** flood

1. Homes fly away.

**a.** hurricane **b.** flood **c.** drought

1. I am hot and wet.

**a.** cloudy **b.** humid **c.** foggy

## Do these time expressions use the present simple or the present continuous?

1. sometimes **a.** the present simple **b.** the present continuous
2. these days **a.** the present simple **b.** the present continuous
3. never **a.** the present simple **b.** the present continuous
4. today **a.** the present simple **b.** the present continuous

## Write the verb in brackets in the correct tense. Use Present Simple or Present Continuous.

1. Right now, we (move) people to safe areas.

**a.** are moving **b.** move **c.** is moving

1. We often (get) this kind of weather in winter.

**a.** are getting **b.** get **c.** getting

1. People always (worry) about the weather.

**a.** worry **b.** are worrying **c.** is warrying

1. This month the south-east of England (experience) a serious drought.

**a.** experience **b.** are experiencing **c.** is experiencing

1. It (not snow) in tropical countries.

**a.** don’t snow **b.** doesn’t snow **c.** isn’t snowing

1. These days, more rain (fall) in Australia because of the global worming.

**a.** falls **b.** fall **c.** is falling

## 4. Choose the most suitable word or phrase for each space.

1. Kate is busy. She ..... for a test.

A) is study B) is studying C) is studies

1. What time ..... to bed?

A) usually do you go B) do usually you go C) do you usually go

1. ..... a great time at the moment!

A) We are have B) We’re have C) We’re having

1. Tina usually ..... at 7.00.

A) get up B) is getting up C) gets up

1. Every day, Frank ..... to work.

A) goes B) is going C) go

1. Stop it! ..... it!

A) I’m not liking B) I don’t like C) I not like

## Контрольна робота 2

*Варіант ІІІ*

## Use the word to describe the weather.

1. The snow is very bad and it’s very windy.

**a.** blizzard **b.** foggy **c.** thunderstorm

1. I am hot and wet.

**a.** cloudy **b.** humid **c.** foggy

1. I can’t keep my hat on.

**a.** windy **b.** cloudy **c.** humid

1. Rain, wind, lightning and noise.

**a.** foggy **b.** thunderstorm **c.** drought

## Do these time expressions use the present simple or the present continuous?

1. currently **a.** the present simple **b.** the present continuous
2. never **a.** the present simple **b.** the present continuous
3. every year **a.** the present simple **b.** the present continuous
4. right now **a.** the present simple **b.** the present continuous

## Write the verb in brackets in the correct tense. Use Present Simple or Present Continuous.

1. Experts say that these storms (be) usual.

**a.** are **b.** is **c.** am

1. Right now, the rescue team (look) for people who are lost in the sea.

**a.** is look **b.** are look **c.** is looking

1. Today (not be) a normal day.

**a.** isn’t **b.** aren’t **c.** doesn’t

1. Thousands of people (wait) for help as the area is still underwater.

**a.** is waiting **b.** wait **c.** are waiting

1. Scientists usually (make) good forecasts for two-weeks period.

**a.** is making **b.** make **c.** are making

1. This month the south-east of England (experience) a serious drought.
2. experience **b.** are experiencing **c.** is experiencing

## 4. Choose the most suitable word or phrase for each space

1. What ..... ? Is it an orange?

A) you are eating B) are you eating C) do you eat

1. Yumiko feels ill, so she ..... basketball.

A) doesn’t playing B) isn’t play C) isn’t playing

1. Pay attention, Philip! ..... ?

A) Do you listen B) Is it listening C) Are you listening

1. Excuse me. ..... to Manchester?

A) This road goes B) Does this road go C) Is this road go

1. ‘What ..... of this book?’ ‘I think it’s fantastic!’

A) do you think B) is you think C) you do think

1. Every day, Frank ..... to work.

A) goes B) is going C) go