

**Михайло Подоляк, Тетяна Череповська,
Михайло Падура**

**ENGLISH FOR
VETERINARY STUDENTS**

Lviv-HALYCH PRESS 2025

УДК: 619:811.111

Под 49

Рекомендовано Вченою Радою Львівського національного університету ветеринарної медицини та біотехнологій імені С.З. Гжицького як навчальне видання для студентів ОПП Н6 "Ветеринарна медицина" (Протокол Вченої Ради №7 від 14.05.2025р).

Рецензенти:

Гутий Б.В. – доктор ветеринарних наук, професор, завідувач кафедри гігієни, санітарії та загальної ветеринарної профілактики ім. М. Демчука, ЛНУВМБ імені С.З. Гжицького,

Шмігер Т.В. – доктор філологічних наук, професор кафедри перекладознавства і контрастивної лінгвістики імені Г.П. Кочура, ЛНУ імені Івана Франка,

Подоляк, Михайло Володимирович.

English for Veterinary Students : навчальний посібник. : Подоляк М.В., Череповська Т.В., Падура М.Ф.. Львів, ГАЛИЧ-ПРЕС : 2025. 357 с. Табл., бібліогр. стор. 354-356 (42 назви)

Посібник призначений для студентів Освітньої програми Н6 "Ветеринарна медицина" та вивчають англійську мову за професійним спрямуванням. Метою посібника є допомога майбутнім фахівцям у підготовці до опрацювання англійської оригінальної літератури за обраною спеціальністю.

Посібник розрахований на аудиторні та самостійні заняття, має лекції з лексико-граматичними вправами, тексти для домашнього читання із завданнями для самоконтролю та англо-український довідник.

© Подоляк М.В., Череповська Т.В., Падура М.Ф., 2025

ISBN 978-617-8690-14-4

© НУ «Львівська політехніка», 2025.

Content

PART 1 ANIMALS IN OUR LIFE

My profession is a veterinary doctor	5
From the history of Veterinary Medicine	11
Classification of animals	14
How many species of animals are there?	24
Domestic animals	27
A penguin joke	34
Cattle	38
Farm animals: a cow	49
Interesting facts about cow	50
Feeding dairy cow	53
Digestion of food in cattle	64
Beef cattle	75
A horse	82
A hog	96
A sheep	109
How to raise a sheep	113
A chicken	124
Amazing facts about chicken	128
Pets: a cat	136
A dog	147
Parrot	157
Fish	160
Bee	173

PART 2 DISEASES OF ANIMALS

Channels of infection	187
Bovine tuberculosis	194
Bovine tuberculosis (clinical findings)	199
Pneumonia	206
Brucellosis	212
Rabies	219

Fasciolosis	227
Anthrax	230

PART 3 ANIMAL PRODUCTS AND NUTRIENS

Milk	239
Meat	249
Honey	261
Fat	265
Protein	269
Carbohydrates	273
Vocabulary	279
Grammar part	320

PART 1 ANIMALS IN OUR LIFE

MY PROFESSION IS A VETERINARY DOCTOR (A VETERINARIAN)

Veterinary medicine is the branch of medicine that deals with the **diseases** of animals. Doctors that treat animals are called *veterinarians*. Veterinarians are trained to prevent, diagnose, and **treat** illnesses in large and small animals. Their work is especially valuable because many animal diseases can **be transmitted** to human beings. Such diseases, called *zoonoses*, include *rabies*, *brucellosis* (Bang's disease), *tuberculosis*, *psittacosis* (parrot fever), and *tularemia* (rabbit fever).



In cities, the main activity of veterinarians is the care of dogs, cats, and other household pets. Most veterinarians in cities are associated with animal hospitals.

These hospitals often contain **equipment** much like that used in hospitals for human beings. There, animals may **be cared for** during illnesses, and **surgery** may be performed to treat an illness or **injury**.

An important part of a veterinarian's duties is the control of rabies. All dogs, cats, and other pets that may be exposed to

rabies must be vaccinated against it. Veterinarians also vaccinate pets against distemper and other diseases.

Many veterinarians are also associated with the public health services. The special skills and knowledge of these doctors are helpful in controlling zoonotic diseases. Veterinarians may **inspect** meat and meat products in slaughtering and packing houses. They may also work in laboratories testing milk or other **dairy products**, or preparing serums and vaccines.

On farms, veterinarians are concerned chiefly with the care and treatment of **livestock**. Veterinarians help keep farm animals in good health and work to prevent outbreaks of animal diseases. Epidemics of animal diseases, or *epizootics*, may be extremely dangerous, not only to the animals, but also to **human beings**. Modern vaccines have made it possible for veterinarians to protect farm animals against many diseases. For example, young **hogs** must be vaccinated against the disease *hog cholera*. At one time, hog cholera often **swept** from farm to farm, killing all the hogs in an entire farming community.

Veterinarians have played an important role in controlling *bovine tuberculosis*, a form of tuberculosis that can be passed from cows to human beings. There are projects that work to control and eradicate *bovine tuberculosis* and *bovine brucellosis*. These diseases can be transferred from **cattle** to human beings, so the veterinarians try to **wipe them out**.

TASK 1. Match the words in bold with the following definitions and synonyms:

1. The same as illnesses.
2. To control, to examine, to test, to check.
3. To cure, to help the sick.
4. Cows.
5. To eliminate.
6. The same as harm, hurt, or damage.

7. Instruments used to treat animals.
8. Spread quickly.
9. People.
10. Be looked after.
11. The same as operations on somebody.
12. Products made of milk.
13. Be transferred
14. Pigs, swine.
15. Farm animals.

TASK 2. Read carefully the text again and answer the questions:

1. What is veterinary medicine?
2. How are the doctors treating animals called?
3. What are veterinarians taught to do?
4. Why is a veterinarian's work so important?
5. What diseases of animals can be transmitted to people?
6. How can rabies be prevented?
7. Do veterinary doctors work only in hospitals?
8. What was done to control bovine tuberculosis?

TASK 3. Fill in the table. Find all the names of diseases mentioned in the text:

Disease	Ukrainian Translation
rabies	сказ

TASK 4. Fill in the required preposition:

To deal ... diseases, to be transmitted ... people, the care ... household pets, to be associated ... hospitals, to care ... animals, the control ... rabies, to be exposed ... rabies, to vaccinate ... distemper, to be helpful ... controlling, to be concerned ... treatment, to play an important role ... controlling diseases, to be passed ... cows ... human beings, to be transferred ... animals ... people.

TASK 5. Find uncountable nouns in the text and underline them. What articles are used before countable nouns? What articles can be used before the uncountable? Find examples in the text to illustrate your answers.

TASK 6. Write a plural of the following nouns:

a branch, a disease, a veterinarian, a diagnosis, an illness, a human being, a man, an injury, a duty, a service, a house, a vaccine, a serum, a community, a degree, a license, a state, a research, an agency.

NB: Ancient (Latin or Greek) origin of some medical terms is reflected in their plural forms: e.g.: alveolus (sing) – alveoli (pl), diagnosis (sing) – diagnoses (pl), genus (sing) – genera (pl), nucleus (sing) – nuclei (pl), phylum (sing) – phyla (pl), streptococcus (sing) – streptococci (pl), bacterium (sing) – bacteria (pl), bacillus (sing) – bacilli (pl), fungus (sing) – fungi (pl).

TASK 7 AT HOME. Divide into small groups; study the peculiarities of the work of a veterinary doctor in a chosen country and present the results to your group. Please take into consideration the following criteria: the period of the study and fees; the salary and working conditions; equipment and regulations in the country you have chosen.

ADDITIONAL TASK. If possible, interview a foreign veterinary doctor or foreign veterinary student concerning the conditions and the work of veterinary doctor in his/her homecountry. Make presentation.

Case Study Exercise: Veterinary Doctor - Diagnosis and Treatment Plan

Scenario: Dr. Emily, a veterinarian at a busy animal clinic, has just received a call about a young German Shepherd dog named Max. Max, who is 3 years old, has been showing signs of lethargy, reduced appetite, and frequent vomiting for the past 48 hours. The dog's owner, Mrs. Johnson, is concerned and wants to understand the possible cause of Max's symptoms and how it can be treated.

Max is up to date with his vaccinations and has no known allergies. Mrs. Johnson reports that Max has not been exposed to any new foods or chemicals, and there have been no changes in his environment. Max's symptoms started with a mild decrease in energy and appetite but worsened over the last two days.

When Mrs. Johnson brings Max into the clinic, the dog appears weak and is visibly dehydrated. His vital signs show a slightly elevated temperature (38.8°C), rapid heart rate, and dry mucous membranes.

Your Task: As Dr. Emily, the veterinary doctor, you need to:

Conduct a thorough examination:

What physical exams or diagnostic tests would you perform to assess Max's condition? List and explain why each is important.

Formulate a possible diagnosis:

Based on the symptoms presented, what could be the potential causes for Max's condition? Consider various illnesses or conditions that may cause vomiting, lethargy, and dehydration in dogs.

Create a treatment plan:

What immediate actions should be taken to stabilize Max? What treatment options would you recommend for both the symptoms and the underlying condition? Make sure to include any medications, fluids, or other interventions necessary.

Provide owner education and follow-up care:

How would you explain Max's condition and treatment plan to Mrs. Johnson? Discuss the importance of follow-up visits, any signs of complications, and preventive measures to avoid similar issues in the future.

Possible Diagnostic Considerations:

Gastrointestinal issues (e.g., pancreatitis, gastroenteritis, foreign body ingestion)

Infections (e.g., viral or bacterial infections such as parvovirus)

Toxin ingestion (e.g., household chemicals, plants, human foods)

Other systemic issues (e.g., kidney failure, liver disease)

FROM THE HISTORY OF VETERINARY MEDICINE

The first written records of veterinary medicine are ancient Indian and Egyptian texts that date to 1900 BC. It is written in one of the Buddhist manuscript about two kinds of medicine available (medicine for people and medicine for animals) and about **healing herbs** for them.



The first attempts to organize and regulate the practice of **treating animals** tended to focus on horses because of their economic significance. In the Middle Ages from around 475 AD, farriers combined their work in **horseshoeing** with the more general task of "horse doctoring". In 1356, the Lord Mayor of London, concerned with the poor standard of care given to horses in the city, requested that all **farriers** operating within a seven mile radius

of the City of London form a "fellowship" to regulate and improve their practices. This ultimately led to the establishment of the Worshipful Company of Farriers in 1674.

The first comprehensive treatise on the anatomy of a non-human **species** was Carlo Ruini's book *Anatomia del*

Cavallo (Anatomy of the Horse), that was published in 1598 in Italy.

The first veterinary college was founded in Lyon, in France, in 1761 by Claude Bourgelat. After observing the devastation being caused by **cattle plague** to the French **herds**, Bourgelat devoted his time to seeking out **a remedy**. This resulted in his founding the above-mentioned establishment. He dispatched his students **to combat the disease**. In a short time, the plague was stopped.

The Odiham Agricultural Society was founded in 1783 in England to promote agriculture and industry. It played an important role in the foundation of the veterinary profession in Britain. A founding member, Thomas Burgess, began to think of animal **welfare** and campaign for the more **humane** treatment of sick animals.

The English physician James Clark wrote a treatise entitled *Prevention of Disease* in which he argued for the professionalization of the veterinary trade, and the establishment of veterinary colleges. The Royal College of Veterinary Surgeons was established by royal charter in 1844.

In the United States, the first schools were established in the early 19th century in Boston, New York and Philadelphia.

TASK 1. True or False?

1. The first veterinary literature dates back to the beginning of the 20th century BC.
2. The farriers were the first veterinarians.
3. The first veterinarian societies were organized in Paris.
4. The Worshipful Company of Farriers was set up in 1670.
5. Carlo Ruini wrote the first fundamental book about people.
6. The first veterinary college was founded in Lyon, France in 1761 by Claude Bourgelat.
7. The Lyon College was concerned with cattle plague.

8. The Odiham Agricultural Society was founded in the USA.
9. Thomas Burgess was the first who began to think of animal welfare and campaign for the more humane treatment of sick animals.
10. A treatise entitled *Prevention of Disease* was written by Claude Bourgelat.

TASK 2. Explain the meaning of the following words in English and translate them:

- healing herbs _____
treating animals _____
horseshoeing _____
farriers _____
species _____
cattle plague _____
herds _____
a remedy _____
to combat the disease _____
welfare _____
human _____

TASK 3. Make the following sentences active:

1. Carlo Ruini's book *Anatomia del Cavallo* (*Anatomy of the Horse*) was published in 1598.
2. The first veterinary college was founded in Lyon, France in 1761 by Claude Bourgelat.
3. A treatise entitled *Prevention of Disease* was written by James Clark.
4. The Royal College of Veterinary Surgeons was established by royal charter in 1844.

TASK 4. Find some information about the establishment of veterinary medicine in Ukraine and write a composition. Be ready to tell about it to the class.

TASK 5. Find all the numerals in the text and write them in words. Practise their pronunciation.

TASK 6 AT HOME. Divide into small groups; study the attitude towards animals in different nations at different time periods i.e. Medieval, WWII, WWI, Ancient Rome etc. Make presentation to your groupmates about the results of your findings.

CLASSIFICATION OF ANIMALS

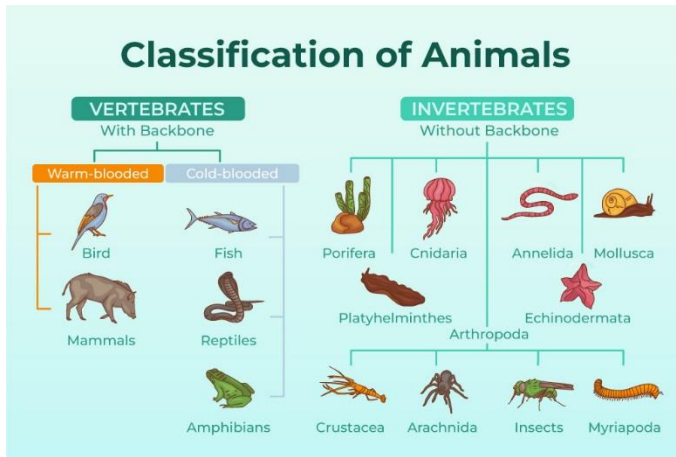
People often divide animals into various groups based on certain similarities the animals share. For example, some animals can be kept as pets, but others are wild. Arranging animals according to their similarities is a handy way of remembering and understanding them.

Some common ways of grouping animals. Animals can be grouped in many ways. They can be arranged according to whether they live on land or in water. Animals that live on land are known as *terrestrial animals*. They include cats, dogs, lizards, mice, and worms. Animals that live in water are called *aquatic animals*. They include fish, lobsters, octopuses, and whales.

Animals can be arranged by the number of legs they have. Dogs, frogs, and lizards have four legs. Bats and birds have two legs. Insects have six legs, and spiders have eight. Snakes and worms have no legs.

Another way to group animals is according to the way they move. Bats, most birds, and many insects fly. Whales and fish swim. Snakes and worms crawl. Antelopes and cheetahs run. Frogs, kangaroos, and rabbits hop.

Some animals are *cold-blooded*, and others are *warm-blooded*. The bodies of cold-blooded animals are warm when their surroundings is warm and cool when their surroundings is cool.



Warm-blooded animals, on the other hand, almost always have the same body temperature,

regardless of the warmth of their surroundings. Birds, mammals, and a few species of fish and insects are warm-blooded.

Animals are also commonly divided into groups according to whether they have a backbone. The vast majority of animals are *invertebrates*. They include clams, insects, jellyfish, sea urchins, snails, spiders, sponges, and worms. The ordinary farm animals belong to the large group known as *Vertebrata*, or animals with a backbone. Fish, amphibians, reptiles, birds, and mammals are all *vertebrates*.

All domestic animals are divided into 3 orders: *herbivorous*, *carnivorous* and *omnivorous*. *Herbivorous animals*

are those that live chiefly on plants. These are cattle, deer, horses, sheep, and rabbits. As they consume coarse food, e.g. leaves and stems of plants, they need considerably larger amount of common salt that is supplied by their usual feeds. The cow, the ox, the sheep and the goat belong to the *ruminants* (animals which chew the cud). Unlike the pig they are capable of digesting a large quantity of coarse fibrous material due to their compound stomachs. *Carnivorous* (*flesh-eating animals, such as cats, dogs, sharks, etc.*) need no additional salt because they live on the bodies of other animals. *Omnivorous animals*, such as pigs, bears, rats and others utilize both plant and animal food.

Hierarchy in the Animal World. The largest group is the *Kingdom Animalia* itself, which includes all animals. Next, each animal is placed in a group called a *phylum*. Each phylum is divided into groups called *classes*. The classes are broken into *orders*, and the orders into *families*. The families are split into *genera*, and the genera into *species*.

Essential Terminology

terrestrial	наземний
aquatic	водний, водяний
cold-blooded	холоднокровний
warm-blooded	теплокровний
surroundings	середовище існування
a backbone	хребет
invertebrate	безхребетний
vertebrate	хребетний
the vertebrata	хребетні
herbivorous	травоїдний
carnivorous	м'ясоїдний
omnivorous	всеїдний
a ruminant	жуйна тварина
a mammal	ссавець

a compound stomach	складний шлунок
a phylum	тип
an order	ряд
genus (<i>pl</i> genera)	рід
species (<i>pl</i> species)	вид

TASK 1. Answer the questions:

1. What animals are called aquatic?
2. What terrestrial animals do you know?
3. What is a common feature of snakes and worms?
4. What animals are called mammals?
5. What animals can crawl?
6. What classification according to the animal surroundings do you know?
7. What animals are called invertebrates?
8. Does a pig belong to the ruminants?
9. How many orders of domestic animals do you know?
10. What do carnivorous animals live on?
11. Why are cattle capable of digesting large quantities of coarse fibrous material?

TASK 2. What types of questions are the above-mentioned ones? Study the following table:

Types of questions (типи питань)	Definitions	Examples
General questions (загальні)	Питання, на які можна відповісти словами <i>yes</i> або <i>no</i> .	Are reptiles cold-blooded?
Special questions (спеціальні)	Питання, що починаються питальними словами	What classifications of animals do

	what (що), who (хто), where (де), how many (скільки)	you know?
Alternative questions (альтернативні)	Запитання вибору. Складаються з двох частин, з'єднаних сполучником or.	Do you keep a cat or a dog?
Disjunctive questions (розділові)	Питання-“перепитування” (Чи не так?)	You will be a veterinary doctor, won't you?

TASK 3. Complete the sentences:

1. The group of animals with a backbone is called ...
2. ... can produce milk.
3. Ruminants can ...
4. The orders of domestic animals are: ...
5. ... animals live on plants.
6. ... animals utilize both plants and animal food.
7. The cow, the ox, the sheep and the goat are ...
8. ... animals need no additional salt.

TASK 4. Fill in the table:

Classifications	Definition	Representatives
	Animals who live in someone's home	
Wild animals		
Classification according to the number of legs	The animals that have: no legs 2 legs	

	4 legs 6 legs 8 legs	
Classification according to the way of movement	The animals that: crawl run fly swim hop	
Cold-blooded animals		
		Birds, mammals, and a few species of fish and insects
Vertebrates		
Invertebrates		
Herbivorous animals		
	Animals living on the bodies of other animals	
		pigs, bears, rats...
	Animals that produce milk	
	Animals that chew the cud	

TASK 5. True or False:

1. Cattle, deer and horses are omnivorous animals.
2. Carnivorous animals need a lot of additional salt.

3. Cows have compound stomachs.
4. Ruminants can't digest a lot of fibrous material.
5. Omnivorous animals live on plants.
6. Herbivorous animals need considerably larger amount of salt than is supplied by their usual feeds.
7. All domestic animals are divided into 2 classes.

TASK 6. Look at the following example and make up a similar chart:

Kingdom: Animalia (includes all animals)

A phylum: Chordata (includes all vertebrate animals, as well as some other more primitive ones)

A subphylum: Vertebrata (includes animals with a backbone)

A class: Mammalia (includes all mammals)

An order: Carnivora (includes carnivorous mammals)

A family: Felidae (includes all cats)

A genus: Panthera (includes the great roaring cats: lions, tigers, jaguars, and leopards)

A species: Leo

TASK 7. Guess the meaning of idioms concerning *A Genus Panthera* and learn them:

to let <i>the cat</i> out of the bag	через себе не перестрибнеш
when <i>the cat's</i> away the mice will play	отримати левову частку
<i>a leopard</i> can't change its spots	проговоритися
to receive the lion's share	кіт – із хати, миші – танцювати

TASK 8. Cooperative Learning Exercise: Classification of Animals

Objective: Students will work in small groups to classify animals into categories based on various characteristics, such as habitat, diet, and body structure. This will help them understand how different classification systems work and promote collaboration and critical thinking.

Step 1: Group Formation and Roles

Divide the class into small groups of 4-5 students. Each group will have different roles for their members:

Leader: Makes sure everyone participates and helps organize the group's work.

Recorder: Writes down the group's ideas and classification decisions.

Presenter: Explains the classification to the class at the end.

Researcher(s): Gather information or discuss the characteristics of the animals.

Step 2: Classification Categories

Give each group a set of animals (can be either pictures or names of animals). The animals could be from a list like this:

Elephant

Shark

Penguin

Kangaroo

Eagle

Snail

Tiger

Whale

Butterfly

Frog

Each group should classify the animals based on the following categories (or you can provide more specific categories):

Habitat: Terrestrial, Aquatic, or Both
Diet: Herbivore, Carnivore, Omnivore
Body Structure: Vertebrate or Invertebrate
Other Category (optional): Group based on the environment (e.g.,

desert, rainforest) or by specific traits (e.g., has wings, has scales).

Step 3: Group Work

Give the groups 15-20 minutes to classify the animals. Encourage them to discuss and debate their choices, ensuring everyone contributes to the decision-making process.

Step 4: Sharing and Presenting

After the groups have completed their classifications, the Presenter from each group will share their classification system with the whole class. The presenter will explain how the animals were categorized and why certain animals were placed in certain groups. Encourage students to ask questions and provide feedback to each group.

Step 5: Reflection

After all groups have presented, you can hold a class discussion on how animals can be classified in different ways. Discuss any differences between the groups' classifications and reflect on why animals may fit into multiple categories (e.g., a penguin is both an aquatic animal and a bird, or an omnivore like a bear eats both plants and animals)

Case Study Exercise: Classification of Animals

Scenario: A group of students are working on a project to classify various animals into their correct taxonomic groups. They are given a set of animals to research and categorize. As their teacher, you are tasked with guiding them through the process of classification.

The animals provided for classification are:

Lion (*Panthera leo*)

Frog (*Rana temporaria*)

Blue Whale (*Balaenoptera musculus*)

Eagle (*Aquila chrysaetos*)

Elephant (*Loxodonta africana*)

Goldfish (*Carassius auratus*)

Bat (*Chiroptera* species)

Spider (*Araneae* species)

Your Task:

Identify the Kingdoms and Phyla:

For each animal, identify the correct Kingdom (Animalia, Plantae, Fungi, etc.) and Phylum. Explain the reasoning behind each classification. For example, a lion belongs to the Animalia Kingdom and Chordata Phylum, while a spider belongs to Animalia and Arthropoda.

Classify Each Animal into the Correct Class:

Break down each animal further into its Class (Mammalia, Amphibia, Reptilia, Aves, etc.). For instance, explain why a frog is classified as Amphibia and a bat as Mammalia. Discuss the specific characteristics that define these classes.

Identify the Order:

Group each animal into its respective Order (e.g., Carnivora, Primates, etc.). Consider the animals' diet, behavior, and other distinguishing features to determine the correct order. For example, the lion belongs to the Order Carnivora, while the eagle is part of the Order Accipitriformes.

Examine Adaptations:

Pick one of the animals (e.g., the bat) and describe its unique adaptations that make it suitable for its environment. Why is the bat's ability to echolocate important for its survival? Similarly,

explore adaptations in other animals (e.g., the web-building ability of the spider, or the large size of the blue whale).

Create a Visual Classification Chart:

Have the students create a visual classification chart with the animals organized by their Kingdom, Phylum, Class, and Order. This will help them better understand the taxonomic hierarchy.

Additional Questions for Discussion:

How do animals of the same Class, such as lions and elephants (both Mammalia), differ in their diet, behavior, and habitat?

What are the key differences between amphibians like frogs and reptiles like lizards in terms of their life cycle, habitat, and physical traits?

How does the classification system help scientists understand animal relationships and evolutionary history?

HOW MANY SPECIES OF ANIMALS ARE THERE?

The answer to this question is – nobody knows! Scientists who study animal life are called zoologists. They have recorded 20,000 species of fish, 6,000 species of reptiles, 9,000 birds, 1,000 amphibians, and 15,000 species of mammals. And, although there is a million of named species of insects, scientists estimate that there could be another million waiting to be discovered and named!

The tragedy is that men are wiping out species so fast that children today will never have the opportunity of seeing many of those that are still living as they read this book. By the time they are grown up, many more species will be extinct. The destruction of the Amazon rain forests, for instance, which is

taking place now, will wipe out thousands of species of animal life that a man has not yet even identified.

DOMESTIC ANIMALS

*Animals are such agreeable friends –
they ask no questions, they pass no criticisms.*

George Eliot (Mary Ann Cross)
(1819-1880)

TASK 1. How do you understand the given-above quotation? Do you agree with it? What else can you say about animals?

TASK 2. Are cows, goats, camels, llamas, reindeer wild or domestic animals? Explain the meaning of the word combinations “wild animals”, “domestic animals”.

TASK 3. Why is the word *reindeer* underlined? What is necessary to remember about its singular and plural forms? What other examples of irregular nouns denoting animals do you remember?

TASK 4. Phonetic warm-up. Look at the words. Fill in a phonetic symbol. Practice the following sounds and words:

[]	[]	[]	[]
rabbit	snail	pig	sheep
cat	whale	squirrel	seal
lamb	snake	fish	zebra
camel	predator	pigeon	peacock
rat	caterpillar	chicken	eagle

TASK 5. Vocabulary activity. Think of the names of: a) farm animals; b) pets; c) animals living in nature. Write down as many words as you can. You may also use the words from them previous exercises.

TASK 6. Read and practice the new words to the new text:

throughout	скрізь
wild	дикий
domestic	домашній
domesticate	приручати
pet	домашній улюбленець
take care for	піклуватися про
prehistoric	доісторичний
tame	приручати
occupation	заняття
poultry	свійська птиця
hog	свиня
livestock	домашня худоба
mule	мул
mink	норка
chinchilla	шиншила
water buffalo	буйвол
plow	плуг
approach	наближатись
spoil	зіпсований, нечемний
right	право
protect	захищати
movement	рух
deserve	заслужувати
consideration	увага
defend	захищати

TASK 7. Listen to the text, then read and translate it:

DOMESTIC ANIMALS

Animals live throughout the world. There are many classifications of them. One of them consists in dividing animals into wild and domestic ones. Domestic animals are those who live in someone's home (**pets**, for example, a cat or a dog that you keep and take care for) and **farm animals** who live on farms. Wild animals are animals living in a natural state, not changed or controlled by people.

Animals have provided people with food and clothing

since prehistoric times.

At least 10 000 years ago, people began domesticating (taming)

animals. Farming is the most important

occupation in the world. People usually

raise cattle, hogs, sheep, chickens,

ducks, and geese. The farms can be divided

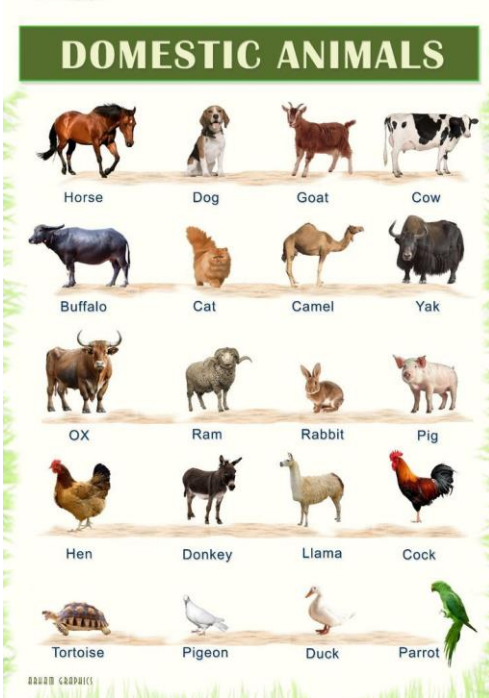
into three main groups:

1) beef cattle, hog, and sheep farms,

2) dairy farms, and 3) poultry farms.

Other specialized livestock farms raise

horses, mules, goats, rabbits, minks, chinchillas,



bees, or fish. Some domesticated animals help people work. Water buffaloes pull plows in Asian rice fields. Horses and camels carry people from one place to another.

As to cats, people first kept cats in their houses to catch rats and mice. They raised dogs to help them hunt and to warn them when danger approaches. Today, cats and dogs are kept largely as pets. The British adore pets – no English home is complete without its dog, the most spoilt member of the family. The dog, like the weather, is the topic for conversation.

Animals need to be protected. *Animals' rights movement* is a term that refers to organized efforts opposing the use of animals for research, food, and clothing. People who defend animal rights are called animal rights activists. They point out that animals deserve greater moral consideration than human beings generally give them.

TASK 8. Answer the questions:

1. What classification of animals do you know?
2. When did people begin domesticating animals?
3. What kinds of farms do you know?
4. Why did people begin taming cats and dogs?
5. What do animal rights activists do?
6. Do you agree that domestic animals are our friends? Do we have to protect them?

TASK 9. Multiple choice. Choose the best variant of an answer:

1. Animals who live in a natural state are called ... animals:
a) domestic; b) wild; c) pet; d) farm
2. The main product of dairy farms is:
a) clothing; b) meat; c) milk; d) feathers.
3. Who pulls plows in Asian rice fields?
a) a llama; b) a reindeer; c) a water buffalo; d) a bull.
4. Who is the most spoilt member of the British family?

- a) a child; b) a parent; c) a parrot; d) a dog.

TASK 10. Matching activity.

Names of animals are often a part of different proverbs or idioms in Ukrainian language. For example, *впертий як віслиук, незграбний як слон, хитрий як лисиця.*

Guess the meaning of English idioms, matching two halves of the table.

a black sheep	впертий
dog-eared (book, album)	ворог, що вдає з себе друга
to flog a dead horse	вжити рішучих заходів
to take the bull by the horns	той, хто не дотримується загальноприйнятих норм суспільства
a wolf in the sheep's clothing	даремно намагатись когось переконати
pig-headed	із загнутими сторінками (книжка, альбом)

Supplementary exercises:

TASK 11. Grammar point: a or an.

- What article would you use with the word “elephant”: *a* or *an*?
- Recollect the rules, how to use indefinite articles before vowels and consonants, present your examples.

TASK 12. Answer the questions: what wild animals can be domesticated? Can penguins be made domestic? Read and listen to the “Penguin joke” and dramatize the dialogue:

Case Study Exercise: Domestic Animals and Their Role in Society

Scenario: You are a veterinary professional or animal behaviorist working with a local animal welfare organization. The organization has noticed a rise in concerns about the welfare of domestic animals in urban areas, particularly regarding the care, behavior, and responsibilities of pet owners. You are asked to create an educational program to address these concerns, particularly focusing on three popular domestic animals: dogs, cats, and rabbits.

You are tasked with preparing a case study report on the needs and issues related to these three domestic animals, including their proper care, challenges they face, and the relationship they have with their human families.

Your Task:

Animal Welfare Concerns: For each of the three domestic animals (dog, cat, and rabbit), identify at least three common welfare concerns they face in a domestic environment. Consider factors like nutrition, health, socialization, and environment. Provide potential solutions or preventive measures to address each concern.

Example:

Dog:

Welfare Concern: Lack of exercise leading to obesity.

Solution: Regular daily walks, playtime, and a balanced diet tailored to the dog's activity level.

Cat:

Welfare Concern: Indoor cats experiencing stress or behavioral issues due to lack of stimulation.

Solution: Providing scratching posts, interactive toys, and window perches to simulate an outdoor experience.

Rabbit:

Welfare Concern: Rabbits not having enough space to exercise or explore.

Solution: Create a spacious living environment, with plenty of room for hopping and exploring, and ensure daily interaction outside their cage.

Proper Care Requirements: List the basic care requirements for each of the domestic animals: food, water, shelter, exercise, and medical needs. Discuss any breed-specific or age-related requirements that owners should be aware of for each species.

Example:

Dog:

Food: Balanced diet (dry food or raw food) suited to breed size and age.

Exercise: At least 30 minutes to 2 hours of exercise per day (depending on the breed).

Medical: Regular vet check-ups, vaccinations, flea/tick prevention, and dental care.

Cat:

Food: High-quality cat food (wet and dry) based on age, health, and activity level.

Exercise: Access to climbing spaces and toys for mental stimulation.

Medical: Annual vet visits for vaccines, and keeping litter boxes clean to avoid urinary tract issues.

Rabbit:

Food: High-fiber diet (hay, fresh vegetables, and a small amount of pellets).

Exercise: Time outside their cage every day to hop around freely.

Medical: Routine check-ups, neutering/spaying, and monitoring for dental problems.

Behavioral Considerations: Discuss the common behavioral issues that might arise with each domestic animal, and how they can be prevented or addressed. Consider the behavioral needs of each animal and the role of the owner in fostering a positive relationship.

Example:

Dog:

Behavioral Issue: Separation anxiety when left alone.

Solution: Gradual desensitization to being alone, using puzzle toys to keep the dog occupied, and providing a safe space for them.

Cat:

Behavioral Issue: Scratching furniture.

Solution: Provide appropriate scratching posts, and trim nails regularly to reduce damage to furniture.

Rabbit:

Behavioral Issue: Chewing on electrical cords or furniture.

Solution: Rabbit-proof the home by covering cords, providing safe chew toys, and ensuring the rabbit has enough mental stimulation.

Socialization and Bonding: For each animal, describe the importance of socialization during their development, and how it impacts their relationship with their human family. Explain how socialization practices differ between these species.

Example:

Dog: Socialization should begin early (8-16 weeks of age) with exposure to different people, environments, and other dogs to prevent behavioral issues like fear aggression.

Cat: While cats are more independent, early socialization (especially with humans) can result in a more well-adjusted and affectionate pet.

Rabbit: Rabbits are social creatures and benefit from gentle handling and interaction with family members, which can help prevent fear-based behavior or aggression.

Adoption and Responsibility: Discuss the importance of responsible pet ownership and the ethical considerations involved in adopting a domestic animal. What are the primary responsibilities of an owner towards their pet, and how does adoption impact the welfare of domestic animals?

Example: When adopting any pet (dog, cat, rabbit), it's crucial to ensure that the family is prepared for the long-term commitment. This includes providing financial resources for veterinary care, setting aside time for daily care and companionship, and being aware of the unique needs of each animal. Adoption is a lifelong responsibility, and the decision should not be taken lightly.

Reflection Questions:

How does the physical and emotional welfare of domestic animals impact the human-animal bond?

What are some challenges faced by pet owners in urban settings versus rural areas? How can these challenges be addressed to improve the welfare of domestic animals?

What are the most common mistakes made by first-time pet owners, and how can these be avoided?

A PENGUIN JOKE

One day a man and his wife were walking down the street when they came across a penguin.

‘Oh!’ explained the man. ‘What a surprise! What shall we do with it?’

‘I know,’ said his wife. ‘We’ll ask a policeman.’

So they found a policeman and explained what had happened.

‘Mmm,’ said the policeman, ‘I think the best thing is to take it to the zoo.’



‘What a good idea!’ said the woman. ‘We’ll go there straight away.’

The next morning the policeman was walking down the same street when he saw the couple again with the penguin. ‘I thought I told you to take that penguin to the zoo,’ the policeman said. ‘Well, we did,’ said the man. ‘We took it to the zoo and we all had a really good time. So this afternoon

we're taking it to the cinema, and this evening we're going to have a meal in a fish restaurant.'

TASK 13. Grammar point: *definite* and *indefinite* articles. Why is the word *penguin* first used with an indefinite article *a* and then with a definite article *the*?

TASK 14. Grammar point: future forms. Underline the sentences that contain future forms of the verbs (structures *to be going to do something* and *will + verb*). What is the difference between the structures. Make up your own examples.

TASK 15. What animals are usually described as clever (brave, stupid)?

TASK 16. Read one of Aesop's fables and fill in the missing words.

A stupid ... found a ...'s skin in the forest one afternoon. He put it on and went to the barnyard to frighten the other animals. "Hee-haw, I'm a ...," the stupid ... said. "That's a very silly joke," the ... answered. "Even though you look like a ..., anyone can tell you're a ... as soon as you open your mouth."

TASK 17. Write your own fable or funny story about domestic animals.

TASK 18 AT HOME. In groups, find interesting facts about domestic animals, history of domestic animals and the importance of domestic animals in human life. Make presentation to the class.

TASK 19. Cooperative Learning Exercise: "Domestic Animals"

Objective: Students will work in groups to research and learn about different domestic animals, their characteristics, habitats, and roles in human society. Each group will present their findings creatively to the class.

Group Formation:

Divide the class into small groups (3-4 students per group).

Materials Needed:

Internet access or books for research

Paper, markers, or a computer/tablet for creating visual aids

A large chart or board for each group to present

Step 1: Assign Domestic Animals (10 minutes)

Each group will be assigned a different domestic animal.

Possible animals include:

Dog

Cat

Cow

Goat

Sheep

Chicken

Horse

Rabbit

Duck

Pig

Step 2: Research Phase (20-25 minutes)

Groups will use resources (books or the internet) to research their assigned domestic animal. They should focus on the following aspects:

Physical characteristics (appearance, size, color)

Habitat and environment (where the animal typically lives)

Diet (what the animal eats)

Uses/importance (how humans use the animal, e.g., milk, wool, companionship)

Interesting facts (fun or unique trivia about the animal)

Step 3: Presentation Preparation (15 minutes)

Each group will prepare a creative presentation to share their findings with the class. Some options for creative presentations include:

A poster or chart with drawings and key points.

A skit or role-play where students act as the animal or a person interacting with the animal.

A short video or slideshow using images and voiceover.

A song or poem about the animal.

Step 4: Presentations (5-7 minutes per group)

Groups will present their findings to the class in a fun and engaging way. The class can ask questions after each presentation to encourage further discussion.

Step 5: Reflection and Discussion (10 minutes)

After all groups have presented, facilitate a class discussion where students reflect on the importance of domestic animals in their lives. Discuss the similarities and differences between the animals, how they help humans, and why it is important to care for them.

Assessment Criteria:

Collaboration: Did the group work together and share tasks fairly?

Content Knowledge: How well did the group explain their assigned animal?

Creativity: Was the presentation engaging and creative?

Communication: Did the group effectively communicate their findings to the class?

Extension Activity: If time permits or as homework, students can:

Create a poster or digital infographic about all the domestic animals presented.

Write a short essay about the role of domestic animals in human societies.

CATTLE

Cattle are among the most important farm animals. We



eat the meat of cattle, and we drink the milk of cattle; we use it to make butter, cheese, and ice cream. The hides of cattle provide leather for our shoes. Cattle also furnish materials

for medicines, soap, and glue. In some countries, cattle do work. They pull plows, carts, and wagons.

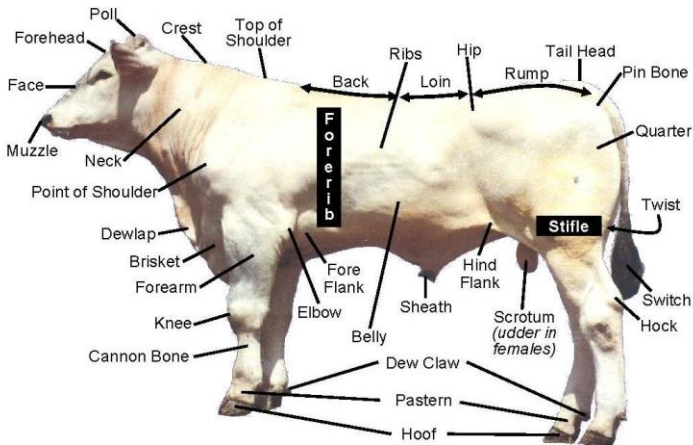
All cattle have large bodies, long tails, and cloven hooves. Some cattle have horns. Cattle chew a cud. Beef cattle are raised for their meat. Dairy cattle are raised for their milk. Dual-purpose cattle provide both meat and milk.

People on every continent raise cattle. Cattle live in cold lands such as Iceland, and in hot countries such as India. Hindus in India believe cattle are holy animals. They do not kill cattle or eat their meat.

People sometimes give cattle names. But they rarely learn to respond to their names as horses and dogs do.

A cow is a female and a bull is a male. Steers are castrated males. A young cow is called a heifer until she gives birth to a calf. A calf is a young heifer or bull. A group of cattle is known as a herd.

The body of cattle. Cattle have muscular bodies. Most



cattle reach a height of about 1.5 meters. Cows weigh from about 410 to 910 kilograms. Bulls may weigh 910 kilograms or more.

Many cattle have black, white, or red coats of hair. Others have coats that are various shades or combinations of shades of these colors. Most cattle have a coat of short hair that

grows thicker and somewhat longer during the winter. A few breeds have long hair. Cattle also have a long tail, which they use to shoo away insects.

Adult cattle have 32 teeth – 8 in the front of the lower jaw and 12 each in the back of the upper and lower jaws. A cow cannot bite off grass because it does not have cutting teeth in the front of its upper jaw. It must tear the grass by moving its head. Cattle chew their cud with their molars.

The horns of cattle are hollow and have no branches, as do those of some other horned animals such as deer. Cattle born without horns are called polled cattle. Cattle owners have increased the number of polled animals through selective breeding. They dehorn (remove the horns of) most horned cattle to keep them from injuring other cattle or people. The horns are removed with chemicals, a hot iron, or a cutting tool. In most cases, dehorning occurs when a calf is less than 3 weeks old.

Cows have a suspended organ called an udder, which holds their milk. The udder hangs from the cow's body between and in front of the hind legs. The udder has four sections that hold milk. Today, farmers rarely milk their cows by hand. They use electrically operated milking machines which use suction to draw the milk into a container.

Notes

for our shoes – для нашого взуття

cloven hooves – роздвоєні ратиці

chew a cud – жують жуйку

dual-purpose cattle – м'ясо-молочна худоба

Hindus in India – індуси в Індії

holy animals – священні тварини

coats of hair – волосяне вкриття

are various shades – є різними відтінками

to shoo away insects – щоб відганяти комах

by moving its head – повертаючи свою голову
which holds milk – у якому міститься молоко

TASK 1. Choose the appropriate answer:

1. The horns of cattle are
A. Hollow B. Full
2. The udder has ... sections that hold milk.
A. Five B. Four C. Three D. Two
3. Adult cattle have ... teeth.
A. 33 B. 32 C. 31
4. The cow must tear the grass by moving its
A. Tail B. Head C. Neck

TASK 2. Correct the mistakes in the words in bold (the Present Simple Tense):

1. Cattle **has** muscular bodies.
2. A cow **do not** have cutting teeth in the front of its upper jaw.
3. The horns **is** hollow and have no branches.
4. The udder **hang** from the cow's body.

TASK 3. Put in these words: long, polled, udder, muscular:

1. Cattle have ... bodies.
2. A few breeds have... hair.
3. Cattle born without horns are called... cattle.
4. Cows have a suspended organ called an

TASK 4. Choose the correct explanation:

Udder	It is used to shoo away insects
Horns	A suspended organ which holds cow's milk

Polled cattle	They are hollow and have no branches
Tail	Cattle born without horns

TASK 5. Translate the sentences:

1. Cattle have muscular bodies.
2. A few breeds have long hair.
3. Cattle chew their cud with their molars.
4. The udder has four sections that hold milk.

TASK 6. Cooperative Learning Exercise: Understanding Cattle

Objective:

Students will work collaboratively to explore various aspects of cattle biology, behavior, care, and management practices in agriculture. They will also learn about the economic, environmental, and social importance of cattle in farming and the global food system.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper or whiteboard

Markers

Cattle case study handouts (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by introducing cattle as one of the most important livestock species worldwide. Highlight their significance for meat (beef), milk (dairy), leather, and other products.

Discuss the different types of cattle (e.g., beef cattle, dairy cattle) and their role in global food production.

Mention the biological aspects of cattle, such as their digestive system (ruminants), life cycle, breeding practices, and the relationship between cattle and their environment.

Outline the importance of proper cattle care, disease management, and the challenges faced by cattle farmers in maintaining herd health and productivity.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to cattle:

Group 1: Cattle Anatomy and Physiology (Focus on the biological systems of cattle, including their digestive system and reproduction)

Group 2: Cattle Breeds and Types (Focus on different cattle breeds, both beef and dairy, and their characteristics)

Group 3: Cattle Behavior and Handling (Focus on cattle behavior, how they communicate, and best practices for handling them in farms)

Group 4: Cattle Nutrition and Feeding (Focus on the dietary needs of cattle, types of feed, and the impact of nutrition on their growth and health)

Group 5: Cattle Management and Welfare (Focus on herd management, disease prevention, and cattle welfare practices in farming)

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using available materials (books, articles, internet). They should aim to answer the following questions:

Cattle Anatomy and Physiology (Group 1): How do cattle digest food as ruminants? What are the main anatomical features of cattle that help them in digestion and reproduction? How does their reproductive cycle work?

Cattle Breeds and Types (Group 2): What are some common beef and dairy breeds? What are their characteristics (e.g., size, milk production, meat quality)? How do farmers select breeds based on production goals?

Cattle Behavior and Handling (Group 3): What are typical cattle behaviors (e.g., herd instinct, aggression, vocalizations)? How can handlers use these behaviors to ensure safe and effective cattle management?

Cattle Nutrition and Feeding (Group 4): What are the nutritional requirements of cattle? How do cattle's diets change at different stages of life (e.g., calves, adults, lactating cows)? How can nutrition impact milk and meat production?

Cattle Management and Welfare (Group 5): What are best practices for managing a herd of cattle (e.g., vaccination schedules, parasite control, breeding management)? How can cattle welfare be ensured in farming operations?

Group Collaboration (15 minutes):

After completing their research, each group will collaborate to create a visual summary (poster, infographic, or slide presentation) of their findings. The visual should include:

Key points from their assigned topic

Diagrams, charts, or images to help explain complex concepts (e.g., digestive system, cattle breeds, feeding schedules)

A brief explanation of how their findings connect to the overall importance of cattle in agriculture and farming

Each group member should contribute to both the creation of the visual and the explanation of their research.

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear, informative, and no more than 5 minutes long. Presentations should include:

An overview of their assigned topic

Key findings, relevant statistics, and important visuals

Insights into how their topic contributes to the overall care and management of cattle

After each presentation, allow for a few minutes of questions or discussion from the class.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

How does understanding cattle anatomy and physiology help farmers improve production and herd management?

What is the importance of selecting the right cattle breed for a farm's goals (e.g., beef production vs. milk production)?

Why is it important to understand cattle behavior for handling and care purposes? What are the safety considerations for handlers?

How does nutrition affect the growth, health, and productivity of cattle?

What are the biggest challenges faced by cattle farmers, and what can be done to address these challenges?

Encourage students to reflect on the broader impact of cattle farming on the environment, economy, and society.

Wrap-Up (5 minutes):

Conclude the activity by summarizing the key takeaways about cattle:

The biological, nutritional, and behavioral aspects of cattle that influence farming practices

The importance of proper management and welfare to ensure healthy, productive cattle

The role of cattle in the global food system and their economic and cultural significance

Assessment:

Group Work: Evaluate the depth and accuracy of each group's research and how well they collaborated to complete their task.

Presentations: Assess the clarity, organization, and engagement of the presentations, as well as their use of visuals to communicate key concepts.

Class Participation: Consider the level of participation in the class discussion, including how well students engage with questions or reflections.

Case Study Exercise: Cattle Health and Management

Scenario: You are a livestock manager working on a large cattle farm in the Midwest. The farm primarily raises dairy cattle and has recently been facing several health and management challenges. Over the past month, there have been multiple reports of cattle showing signs of reduced milk production, lethargy, and signs of digestive upset, including bloating. Additionally, some cattle have been observed with symptoms of skin lesions and coughing. As the farm's cattle specialist, you are tasked with identifying the possible causes, providing treatment plans, and implementing preventive strategies.

The farm operates with around 200 cows, all of which are Holstein dairy cattle. The herd is typically housed in large barns with access to pasture, and the cows are fed a mixed diet of silage, hay, and grain. The farm has been using a standard

vaccination schedule, and no new cattle have been introduced to the herd recently.

Your Task:

Identify the Possible Health Issues: Based on the symptoms of reduced milk production, lethargy, digestive upset, bloating, skin lesions, and coughing, list at least three possible health issues that could be affecting the cattle. For each issue, provide:

The likely cause or origin of the problem.

The signs and symptoms associated with each issue.

Any diagnostic tests that may be required to confirm the diagnosis.

Example:

Bloat (Ruminal Tympany):

Cause: An imbalance in the cow's diet, such as overfeeding on high-fermentable carbohydrates like silage.

Symptoms: Swelling in the left side of the abdomen, discomfort, and reduced appetite.

Diagnostic Tests: Physical examination, auscultation (listening to the rumen), and sometimes a rumen fluid analysis.

Formulate a Treatment Plan: For each identified health issue, create a treatment plan for the affected cattle. Include both immediate treatments to relieve symptoms and long-term strategies to manage the issue. Consider medication, diet adjustments, and any other necessary interventions.

Example:

Bloat (Ruminal Tympany):

Immediate Treatment: Administer anti-foaming agents (e.g., poloxalene) to reduce foam in the rumen, relieve pressure, and encourage eructation.

Long-Term Treatment: Review and adjust feeding practices (e.g., reduce the amount of high-sugar silage), improve access to fiber, and ensure proper feed transitions.

Dermatological Infections (e.g., ringworm or lice):

Immediate Treatment: Topical antifungal treatments (if ringworm is diagnosed) or external parasitic treatments (if lice or mites are suspected).

Long-Term Treatment: Implement regular parasite control programs and improve hygiene in the barn to prevent re-infection.

Preventive Measures: What preventive measures would you recommend to minimize the risk of these health issues recurring in the future? Include suggestions on feed management, environmental improvements, and vaccination schedules.

Example:

For Bloat:

Preventive Measure: Ensure cows have access to a balanced diet with proper fiber content, and gradually transition them to new feed types to avoid sudden changes in the rumen flora. Offer high-quality roughage (such as hay) to improve rumen motility.

For Dermatological Issues:

Preventive Measure: Regularly monitor the herd for early signs of infections, maintain good barn hygiene, and follow a routine parasite control program (including deworming).

Animal Welfare and Management: How would you address the welfare of the cattle while managing these health issues? Consider factors like stress, housing conditions, handling practices, and overall well-being.

Example:

Minimize handling stress during treatment by ensuring calm and gentle handling of cattle, especially when dealing with bloated cows or those with skin infections.

Provide sufficient space for movement, access to clean water, and a comfortable environment that minimizes the risk of diseases spreading, especially in confined housing situations.

Communication with the Farm Owner: Prepare a report for the farm owner, explaining the identified issues, your treatment and management recommendations, and preventive strategies. Provide clear and actionable steps that the owner can implement to improve cattle health and farm productivity.

Reflection Questions:

How do management practices like feeding, housing, and hygiene contribute to the overall health and productivity of dairy cattle?

Why is it important to have a robust health monitoring and early detection system in place on a dairy farm?

How would you prioritize resources (e.g., veterinary care, feed adjustments, labor) if there were multiple health issues affecting different parts of the herd?

FARM ANIMALS: A COW

TASK 1. What farm animal would you breed if you were a farmer? Why? Tell the class about your preferences.

TASK 2. What farm animal...

- chews the cud?
- has a compound stomach?

- produces wool?
- produces milk?
- produces eggs?
- produces feathers?
- is used for transportation and work?
- has a cleft upper lip?
- has a 40-week gestation period?
- has a 21-week gestation period?
- has dense fleece?
- has a keen sense of sight and hearing?
- has claws?
- has a beak?
- can swim?
- can perform in circus?
- is concerned with sports?

COW

The cow belongs to the class of ruminants. Its value as a domestic animal consists in its ability to consume and digest large quantities of roughage and to convert it into milk and meat for human food.

The cow's stomach is compound. It has four distinct compartments: a rumen, a reticulum, an omasum, and an abomasum. The stomachs of mature cows vary in capacity depending on the size of the animal.

To produce a large supply of rich milk, cows must be not only well fed but also be of good milking qualities. The cows that are producing milk require a much larger quantity of water than is necessary for growing animals.

The period of gestation in cows is about 40 weeks.

The lactation period is the period of milking after each calf and it usually lasts for about ten months.



The first milk after calving is called colostrums, and it has a necessary laxative action on the calf's stomach.

Dairy cows are milked three times a day and watered twice a day.

In summer the consumption of water by cattle is greater on account of the greater evaporation from the skin.

TASK 1. Answer the questions:

1. What class of animals does the cow belong to?
2. What farm animals chew the cud?
3. Why is a cow a valuable animal?
4. How many compartments are there in the cow's stomach?
5. How long does the period of gestation in cows last?
6. How long does the lactation period last?
7. In what season do the cattle consume more water?

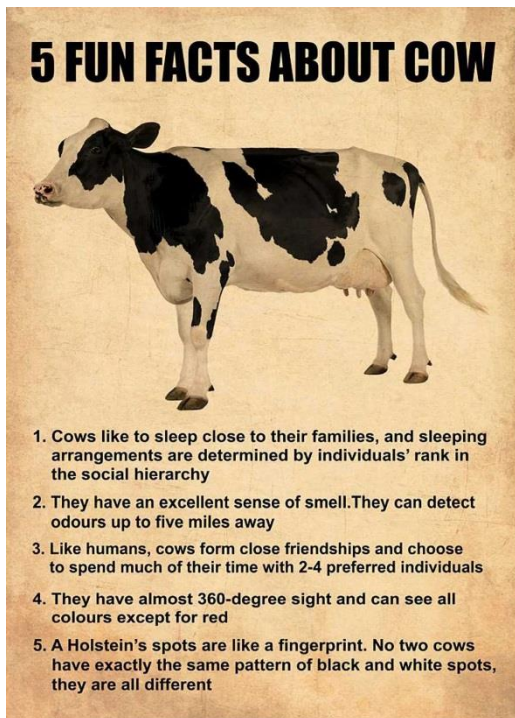
TASK 2. True or False:

1. The cow belongs to ruminants.
2. The cow's stomach has three parts.
3. The cows that are producing milk require less water than is necessary.
4. The period of gestation is 20 weeks.

5. The period of lactation lasts for about ten months.
6. The first milk after calving is called colostrums.
7. Dairy cows are milked two times a day and watered three times a day.
8. In summer the consumption of water by cattle is lower.

TASK 3. Listen and tell what information is new for you:

INTERESTING FACTS ABOUT COWS



At first glance, cows might seem to be simple animals, but they're not! Cows are fascinating animals. For instance did you know that cows can smell something up to six miles away? Here's a list of interesting facts:

1. Cows are social animals, and they naturally form large herds. And like people, they will make friends and bond to some herd members, while avoiding others;
2. Cows are red-green colorblind. In a

bullfight, it's the waving of the cloth that attracts the bull not the red color;

3. A cow's heart beats between 60 and 70 beats per minute;

4. Cows can hear lower and higher frequencies better than humans;
5. The average cow chews at least 50 times per minute;
6. The typical cow stands up and sits down about 14 times a day;
7. An average cow has more than 40,000 jaw movements in a day;
8. Cows actually do not bite grass; instead they curl their tongue around it;
9. Cows have almost total 360-degree panoramic vision;
10. Cows have a single stomach, but four different digestive compartments;
11. Cows are pregnant for 9 months just like people;
12. Cows spend 8 hours per day eating, 8 hours chewing the cud, and 8 hours sleeping;
13. You can lead a cow upstairs, but not downstairs. Cows knees can't bend properly to walk downstairs;
14. Cows only have bottom teeth;
15. Dairy cows are economic job creating machines! One dairy cow creates four full-time jobs in the local community;
21. The spots of the Holstein breed are like fingerprints. No two cows have exactly the same pattern of black and white spots. They are all different.

FEEDING DAIRY COWS

A cow's food consists of concentrates and roughage. The concentrates are foods in which the nutritive energy is high in proportion to their weight and bulk, and they are from 75 to 100 per cent digestible. In roughages, the nutritive value is lower in proportion to weight, the digestibility being from 30 to 75 per cent.

The concentrates consist of grains and highly digestible materials produced from grains, while roughages are whole plants, with exception of the roots. Pasture and silage are also usually included under the head of roughage. In numerous



experiments with cattle, the nutritive properties of grain and hay have been studied by feeding each kind of food separately for long periods. Cattle cannot be kept alive more than a year or so on grain alone. High-producing

cow, however, cannot be kept anywhere near their maximum milk production on hay alone, because they are not able to eat and digest the enormous bulk of this kind of food which would be necessary to supply the nutritive energy required for heavy milk production.

In order to keep high-producing cows in good health and obtain maximum milk production, one should feed them both hay and grain – the hay to provide some nutritive energy, but particularly certain nutritive essentials necessary to keep animals in good health; the grain – to provide a large amount of nutritive energy in such concentrated form that the cows can consume and digest enough of it for heavy milk production.

TASK 1. Answer the questions:

1. What does a cow's food consist of?
2. What are the concentrates?
3. What do the concentrates consist of?
4. What are roughages?
5. What has been studied in numerous experiments with cattle?

6. How should high-producing cows be fed?

TASK 2. Put the words in the correct order:

1. cannot/cattle/grain/kept/be/alone/on
2. nutritive/roughages/lower/value/is/the/of
3. should/one/feed/grain/both/hay/and/cattle
4. necessary/keep/animals/to/it/health/is/good/in
5. grain/cows/digest/able/not/eat/are/to/and/enormous/
bulk/the/of/

TASK 3. Put down all the adjectives from the text.

TASK 4. Write the degrees of comparison:

nutritive -

high –

digestible –

low –

numerous –

necessary –

good –

bad –

large –

TASK 5. Cooperative Learning Exercise: Feeding Dairy Cows

Objective:

Students will work collaboratively to explore the principles of feeding dairy cows, including their nutritional needs, types of feed, feeding schedules, and the impact of feeding practices on milk production and cow health.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper, whiteboard, or poster board

Markers

Dairy cow feeding guidelines or case studies (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by introducing the importance of proper feeding in dairy cattle. Emphasize that good nutrition is critical for maintaining the health of dairy cows and ensuring high milk yield and quality.

Discuss the nutritional needs of dairy cows, including the essential nutrients such as water, carbohydrates, proteins, fats, vitamins, and minerals.

Explain the digestive system of dairy cows (ruminants) and how they process their food to extract nutrients.

Briefly explain how feeding practices affect not only milk production but also the health of the cows, including issues like metabolic disorders (e.g., ketosis), mastitis, and body condition.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to feeding dairy cows:

Group 1: Nutritional Needs of Dairy Cows (Focus on the basic nutrients required by dairy cows, including energy, protein, vitamins, and minerals)

Group 2: Types of Feed for Dairy Cows (Focus on the different types of feed (e.g., forages, grains, supplements) and how they meet the cow's nutritional needs)

Group 3: Feeding Practices and Schedules (Focus on the frequency and timing of feeding, how to balance the diet throughout lactation, and the role of feeding strategies on milk production)

Group 4: Impact of Feeding on Milk Production and Health (Focus on how feeding practices influence milk yield, milk quality, and the overall health of the dairy cow)

Group 5: Managing Feeding for Different Stages of Lactation (Focus on the specific nutritional needs of dairy cows during different stages of lactation, such as early lactation, peak production, and dry periods)

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using available materials (books, articles, internet). They should aim to answer the following questions:

Nutritional Needs of Dairy Cows (Group 1): What are the essential nutrients for dairy cows? How do energy, protein, and other nutrients support milk production? What are the daily requirements for each nutrient?

Types of Feed for Dairy Cows (Group 2): What are the main types of feed used for dairy cows (e.g., silage, hay, grains, concentrates, by-products)? How do these feeds fulfill different nutritional needs? What factors should be considered when selecting feed for dairy cows?

Feeding Practices and Schedules (Group 3): How often should dairy cows be fed? What is the best way to organize a feeding schedule to ensure optimal milk production and cow health? How does the timing of feeding affect digestion and lactation?

Impact of Feeding on Milk Production and Health (Group 4): How do different feeding practices affect milk yield and composition (e.g., fat and protein content)? What role does nutrition play in preventing metabolic disorders (e.g., ketosis)?

How does feeding impact cow longevity and reproductive performance?

Managing Feeding for Different Stages of Lactation (Group 5):
How do the feeding needs of dairy cows change during early lactation, peak production, and the dry period? What specific nutrients should be emphasized at different stages? How can feeding strategies support a cow's transition between lactation periods?

Group Collaboration (15 minutes):

After completing their research, each group will collaborate to create a visual summary (poster, infographic, or slide presentation) of their findings. The visual should include:

Key points and findings related to their assigned topic

Diagrams, charts, or images to illustrate concepts (e.g., nutrient breakdown, types of feed, feeding schedule)

A brief explanation of how their findings connect to the overall health and productivity of dairy cows

Each group member should contribute to the creation and explanation of the visual.

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear, informative, and no more than 5 minutes long. Presentations should include:

An overview of their assigned topic

Key findings, relevant statistics, and important visuals

Insights into how their topic influences dairy cow health and milk production

After each presentation, allow for a few minutes of questions or discussion from the class.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

- What are the best practices for feeding dairy cows to maintain high milk production and cow health?
- How can feeding strategies be adjusted for cows at different stages of lactation to optimize production?
- What are the common nutritional deficiencies in dairy cows, and how can they be prevented?
- How do different feed types (e.g., forages vs. concentrates) impact milk quality and cow performance?

Encourage students to reflect on the importance of proper feeding practices for the long-term sustainability of dairy farming.

Wrap-Up (5 minutes):

Conclude the activity by summarizing the key takeaways about feeding dairy cows:

The essential nutrients that dairy cows need for optimal milk production and health.

The importance of a balanced, well-planned feeding regimen that takes into account the cow's physiological needs at different stages of lactation.

The impact of nutrition on the overall welfare of dairy cows and the success of dairy farming.

Assessment:

Group Work: Evaluate how well each group researched and collaborated on their assigned topic, ensuring that the information is accurate and comprehensive.

Presentations: Assess the clarity, organization, and engagement of the group presentations, as well as their use of visuals to enhance understanding.

Class Participation: Consider how actively students participate in the class discussion, asking questions or contributing to reflections.

Case Study Exercise: Feeding a Cow for Optimal Health and Production

Scenario: You are a nutritionist working for a large dairy farm with a herd of 150 Holstein cows. The farm's primary goal is to produce high-quality milk while maintaining the overall health and well-being of the cows. Recently, the farm has noticed a decline in milk production, and some cows have shown signs of poor body condition and weight loss. The owner has asked you to evaluate the current feeding practices and provide a comprehensive feeding plan for the cows.

The cows are primarily fed a diet consisting of silage, hay, and a concentrate mix. They are housed in free-stall barns with access to pasture during the warmer months. The farm is transitioning to a more intensive feeding program, aiming to increase milk production without compromising cow health.

Your Task:

Evaluate the Current Feeding Program: Review the current feeding plan and analyze whether it meets the nutritional requirements of the cows. Consider factors such as:

The cows' stage of lactation (early, mid, or late lactation).

Nutritional requirements for maintenance, milk production, and growth.

The balance of fiber, protein, carbohydrates, and minerals in the diet.

The quality of feed ingredients (e.g., silage quality, hay quality, and concentrate mix).

The cows' body condition and weight, and how this aligns with their feeding.

Example:

If cows are losing weight or showing poor body condition, the current diet may not be providing adequate energy or protein for milk production or maintenance. The silage may be too high in fiber or too low in energy, and the concentrate mix may not provide enough digestible protein.

Create a Balanced Feeding Plan: Based on your evaluation, create a revised feeding plan tailored to the needs of the cows. Consider the following:

For lactating cows: The diet should provide high-energy, high-protein feed, including quality silage, hay, and concentrates.

For dry cows (non-lactating cows): A different nutrient profile may be needed, focusing on maintaining body condition while preparing for the next lactation cycle.

Ensure an appropriate balance of roughage (fiber) for proper rumen function and concentrates for milk production.

Include vitamins and minerals (e.g., calcium, phosphorus, magnesium) that support dairy cow health, especially during lactation.

Example:

Lactating cows (early lactation): High-quality alfalfa hay, corn silage, and a concentrate mix with a higher protein content (e.g., soybean meal, canola meal) to support milk production.

Dry cows: Grass hay, moderate protein concentrate, and added minerals to maintain body condition without promoting excessive weight gain.

Consider Specific Cow Needs: Cows have different nutritional needs depending on their stage of lactation, age, and health status. Create feeding adjustments for the following categories of cows on the farm:

Heifers (young cows that have not yet calved): Nutritional needs for growth and development.

Older cows (e.g., those in late lactation or approaching dry period): Nutritional needs to prepare for the next lactation and prevent metabolic disorders.

Cows with health issues (e.g., lameness or mastitis): Adjustments to promote recovery and maintain milk production.

Example:

Heifers: Provide a balanced diet to support proper growth, including adequate fiber for rumen development and protein for muscle and bone growth.

Older cows: Ensure they are getting a proper mix of fiber and energy, with a gradual transition to a dry cow diet to prevent conditions like ketosis or displaced abomasum.

Monitor and Adjust the Feeding Program: Develop a system for ongoing monitoring of the cows' health and production, and describe how adjustments will be made to the feeding plan as needed. Consider the following monitoring points:

Milk production (how it varies over time and across different cows).

Body condition scoring and weight monitoring.

The quality of manure (which can indicate digestion and fiber intake).

Monitoring for signs of metabolic disorders (e.g., ketosis, milk fever).

Example:

Regularly weigh cows and monitor their body condition scores (BCS) to ensure that cows are neither losing excessive weight nor becoming too fat.

Test milk production weekly to identify any drops in production that might indicate nutritional imbalances or health issues.

Implement Feeding Strategies for Optimal Health and Production: Discuss how you will educate the farm workers and owners about the importance of proper feeding practices and how to implement the plan effectively. Include strategies for feeding consistency, managing feed quality, and reducing waste.

Example:

Provide training to staff on feeding consistency, making sure each cow receives the correct amount of feed at regular intervals.

Develop a system for managing feed storage and quality to prevent spoilage and nutrient loss.

Use feed management tools, such as ration calculators, to ensure the cows' nutritional needs are met.

Reflection Questions:

How do the feeding requirements of dairy cows differ between early, mid, and late lactation? Why is it important to adjust the diet at each stage?

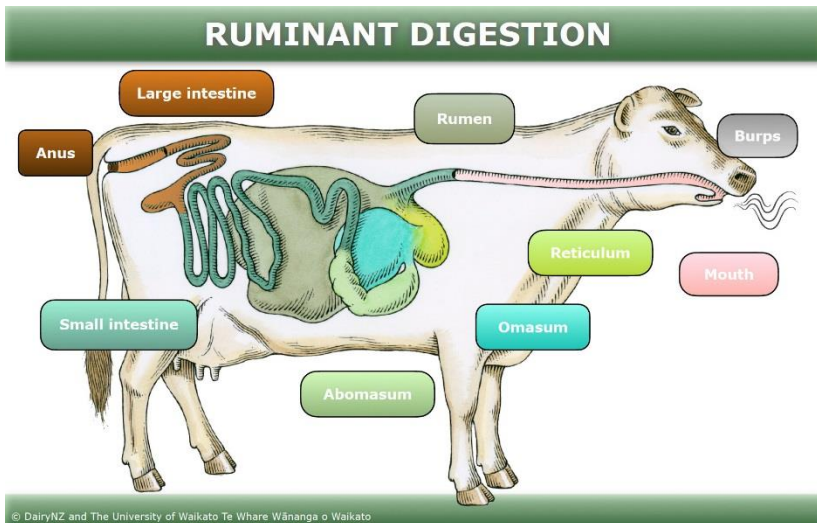
How can poor nutrition impact not only milk production but also the overall health of the cow (e.g., metabolic disorders)?

Why is it essential to provide a balanced diet that includes both roughage and concentrates? What role does fiber play in a cow's digestive health?

DIGESTION OF FOOD IN CATTLE

Cattle have a stomach with four compartments. This kind of stomach enables them to bring swallowed food back into their mouth to be chewed and swallowed again. Animals with such stomachs are called ruminants. The compartments are the rumen, the reticulum, the omasum, and the abomasum. The stomach serves as a storage place for food, so that a large mass of food may be eaten at one time.

When cattle eat, they first chew their food only enough to swallow it. The food goes down the esophagus (food pipe) into the rumen. The rumen and the reticulum form a large storage area. In that area, the food is mixed and softened. At the same time, microorganisms that grow in the rumen break down



complex carbohydrates into simple carbohydrates. Such simple carbohydrates as sugars and starches provide the major source of energy for the animal. The microorganisms also build protein and many B-complex vitamins.

After the solid food has been mixed and softened, stomach muscles send it back up into the animal's mouth. The animal rechews this cud and swallows it. The swallowed cud goes back to the rumen and reticulum, where it undergoes further chemical breakdown. The food and fluids then move down into the omasum, where much of the water is absorbed. The food then enters the abomasum. The walls of the abomasum produce digestive juices. These juices further digest the food. The abomasum is called the true stomach, because it functions in much the same way as the stomach of creatures that are not ruminants. From the stomach the food goes to the intestine, where digestion and absorption are completed.

Notes

to be chewed again – щоб знову пережовувати
at one time – за один раз
they first chew – вона спочатку жує
only enough to – тільки для того, щоб
rechews this cud – ще раз пережовує цю жуйку
the true stomach – власне шлунок
in much the same way as – майже так само, як

TASK 1. Choose the appropriate answer:

1. Cattle have a stomach with ... compartments.
A. four B. three C. five
2. The food goes down the esophagus into the... .
A. rumen B. reticulum C. omasum
3. The abomasum is called the ... stomach.
A. true B. false C. wrong
4. From the stomach the food goes to the ... , where digestion and absorption are completed.
A. omasum B. intestine C. rumen

TASK 2. Order the sentences:

1. Cattle chew their food only enough to swallow it.
2. Stomach muscles send the food back up into the animal's mouth.
3. The food goes to the intestine, where digestion and absorption are completed.
4. The food goes down the esophagus into the rumen.
5. The food enters the abomasums.

TASK 3. Translate the sentences:

1. The animal rechews the cud and swallows it.
2. The juices digest the food.
3. The stomach serves as a storage place for food.
4. Cattle have a stomach with four compartments.

TASK 4. Choose the correct explanation:

An esophagus	They break down complex carbohydrates into simple
Carbohydrates	A food pipe
Microorganisms	They provide the major source of energy for the animal
Juices	They digest the food

TASK 5. Cooperative Learning Exercise: Digestion in Cattle

Objective:

Students will work collaboratively to understand the digestive system of cattle, focusing on their ruminant digestive process, the role of different compartments of their stomach, and how feeding and nutrition impact digestion and overall health.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper, whiteboard, or poster board

Markers

Diagram of the ruminant digestive system (optional)

Handouts on cattle digestive physiology (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by explaining the ruminant digestive system of cattle, focusing on how it differs from the digestive systems of monogastric animals (like humans or pigs).

Discuss the four compartments of the cattle stomach: the rumen, reticulum, omasum, and abomasum. Emphasize the functions of each part in digesting fibrous plant material (e.g., grass, silage).

Mention the process of fermentation in the rumen, where microbes break down cellulose and other complex carbohydrates that cattle cannot digest on their own.

Briefly explain the role of saliva, enzymes, and the importance of microbial populations in the digestion process.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to cattle digestion:

Group 1: The Rumen and Fermentation (Focus on the function of the rumen and the microbial fermentation process that allows cattle to digest fibrous plant material)

Group 2: The Reticulum and its Role in Digestion (Focus on the role of the reticulum in sorting feed and aiding in fermentation)

Group 3: The Omasum and Absorption of Water and Nutrients (Focus on how the omasum contributes to nutrient absorption and water recycling)

Group 4: The Abomasum and the Final Stages of Digestion (Focus on the abomasum's role in protein digestion and how it works similarly to the stomach of non-ruminants)

Group 5: The Role of Saliva and Enzymes in Cattle Digestion (Focus on how saliva and digestive enzymes aid in the breakdown of feed and the role of chewing in digestion)

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using available materials (books, articles, internet). They should aim to answer the following questions:

The Rumen and Fermentation (Group 1): What is the function of the rumen? How do microbes help break down fibrous plant materials? What are some common types of microbes found in the rumen, and how do they contribute to digestion?

The Reticulum and its Role in Digestion (Group 2): What is the role of the reticulum in the digestive process? How does the reticulum help break down food particles and aid in fermentation? What is rumination, and why is it important for digestion?

The Omasum and Absorption of Water and Nutrients (Group 3): What does the omasum do in the digestive process? How does it help absorb water, nutrients, and minerals? How does the structure of the omasum aid in nutrient absorption?

The Abomasum and the Final Stages of Digestion (Group 4): What is the function of the abomasum in digestion? How is the abomasum similar to a monogastric stomach in its ability to digest proteins and break down food further?

The Role of Saliva and Enzymes in Cattle Digestion (Group 5): How does saliva help in digestion, and why do cattle produce

large amounts of it? What digestive enzymes are present in cattle saliva, and how do they assist in breaking down feed?

Group Collaboration (15 minutes):

After completing their research, each group will collaborate to create a visual summary (poster, infographic, or slide presentation) of their findings. The visual should include:

Key points and findings related to their assigned topic

Diagrams, charts, or images to help explain the digestion process in cattle (e.g., digestive system diagram, fermentation process, enzyme action)

A brief explanation of how their findings connect to the overall digestion process in cattle

Each group member should contribute to the creation and explanation of the visual.

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear, informative, and no more than 5 minutes long.

Presentations should include:

An overview of their assigned topic

Key findings, relevant statistics, and important visuals

Insights into how their topic contributes to the overall digestive process in cattle

After each presentation, allow for a few minutes of questions or discussion from the class.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

How does the ruminant digestive system allow cattle to process large quantities of fibrous feed?

Why is fermentation so important for cattle, and how does it help them extract nutrients from plant material that would otherwise be indigestible?

What role does the reticulum play in the digestive process, and how does it relate to the overall efficiency of digestion in cattle?

How does the abomasum contribute to the final stages of digestion, and what does this tell us about the similarities between cattle and other animals with monogastric digestion?

What is the importance of saliva in cattle digestion, and how does the constant chewing process support digestion?

Encourage students to reflect on how the unique aspects of cattle digestion allow them to thrive on diets that would not support other species.

Wrap-Up (5 minutes):

Conclude the activity by summarizing the key takeaways about digestion in cattle:

The rumen, reticulum, omasum, and abomasum each play distinct and crucial roles in the cattle digestive system.

Fermentation in the rumen is essential for breaking down fibrous plant materials that cattle cannot digest on their own.

The digestion process in cattle is highly efficient, allowing them to extract nutrients from plant-based diets.

Saliva and chewing are critical components of the digestive process, aiding in the breakdown of feed and the regulation of digestion.

Assessment:

Group Work: Evaluate the depth and accuracy of each group's research and how well they collaborated to complete their task.

Presentations: Assess the clarity, organization, and engagement of the group presentations, as well as their use of visuals to enhance understanding.

Class Participation: Consider how actively students participate in the class discussion, asking questions or contributing to reflections.

Case Study Exercise: Digestion of Food in Cattle.

Scenario: You are a veterinary nutritionist working with a large cattle farm that specializes in beef production. The farm has recently noticed a decline in the overall health of some of the cattle, including symptoms like bloating, reduced feed intake, and occasional diarrhea. The farm manager is concerned that the cattle's digestion might be compromised, affecting their weight gain and overall productivity.

After reviewing the farm's feeding practices, you notice that there has been a recent shift to a high-grain diet (corn and barley) in an effort to improve growth rates and fattening. The cattle were previously fed a primarily grass-based diet with some silage. The manager is asking you to assess the potential issues related to the new feeding program and provide recommendations to improve digestion and animal health.

Your Task:

Understanding Ruminant Digestion:

Briefly explain the process of digestion in cattle, focusing on the role of the rumen and the different stomach compartments (rumen, reticulum, omasum, abomasum).

How does this process differ from monogastric digestion (like in humans or pigs)?

Describe the role of microbes in the rumen and how they assist in breaking down fibrous plant material (e.g., cellulose).

Example:

Cattle are ruminants with a four-compartment stomach, each compartment playing a crucial role in breaking down fibrous plant material. The rumen is home to billions of microbes that help ferment and digest plant fiber, turning it into volatile fatty acids (VFAs), which provide energy for the cattle.

Impacts of a High-Grain Diet on Digestion:

Discuss how the recent shift to a high-grain diet might be affecting the digestion process of the cattle. Specifically, consider how a diet high in starch (corn, barley) might impact rumen function.

What are the potential risks associated with high-grain feeding in cattle, particularly in relation to the rumen pH, acidosis, and bloating?

Explain the concept of ruminal acidosis and how it can lead to digestive disturbances like diarrhea, bloating, and reduced feed intake.

Example:

High-grain diets, when fed too quickly or in excess, can lower the pH of the rumen, leading to ruminal acidosis. This can disrupt normal rumen fermentation, causing an overgrowth of harmful bacteria and reducing the efficiency of digestion. As a result, cattle may experience symptoms such as bloating, diarrhea, and decreased appetite.

Identifying the Symptoms of Digestive Issues: Based on the symptoms of bloating, reduced feed intake, and diarrhea, propose a diagnosis related to the cattle's digestive issues. Could these symptoms indicate a more serious condition like ruminal acidosis or bloat?

What diagnostic tools or tests would you recommend to confirm your diagnosis (e.g., rumen fluid analysis, pH monitoring, clinical examination)?

Example:

The symptoms point toward ruminal acidosis due to the shift to a high-grain diet. To confirm, I would recommend rumen fluid analysis to check the pH, as well as monitoring for any signs of systemic infection or dehydration. Bloating could also indicate bloat, a potential complication of acidosis.

Treatment and Management Strategies:

What immediate treatments would you recommend for cattle showing signs of ruminal acidosis? Consider the use of antacids, changes to the feeding schedule, or any medication.

If bloat is present, what steps should be taken to relieve the condition and prevent further episodes?

What longer-term management strategies could you implement to prevent future digestive issues, such as altering the grain-to-forage ratio, introducing buffers, or improving feed transition protocols?

Example:

For ruminal acidosis, I would immediately administer bicarbonate or magnesium hydroxide to neutralize the acid and help restore normal rumen function. In the case of bloat, I would relieve the pressure using an anti-foaming agent like poloxalene and consider the use of a rumen trocar for severe cases. Long-term, I would recommend gradually transitioning cattle to higher-grain diets and incorporating more fiber or buffers (e.g., sodium bicarbonate) to stabilize rumen pH.

Feeding Recommendations to Improve Digestion:

Suggest a more balanced feeding program for the farm, considering the role of roughage (fiber) and concentrates (grain). What are the optimal fiber and grain ratios to maintain rumen health and prevent digestive disturbances?

How can the feeding program be gradually adjusted to ensure smooth transitions between different types of feed (e.g., from grass to silage or from silage to grains)?

What role does water intake play in digestion, and how can you ensure cattle are drinking enough water to support healthy digestion?

Example:

I would recommend a 50-60% forage (roughage) and 40-50% concentrate (grain) diet, with the grain portion gradually increased to prevent acidosis. The transition to higher grain should be slow, with a few days or weeks to allow the rumen microbes to adapt. Ensuring adequate access to clean, fresh water is also essential, as water aids in digestion and helps maintain proper rumen function.

Preventive Measures for the Future:

What long-term preventive measures can the farm implement to maintain optimal digestive health in the cattle? Consider factors such as diet formulation, monitoring rumen health, and providing continuous education to farm staff.

How can regular health and digestion monitoring reduce the risk of digestive disturbances in the future?

Example:

Regular monitoring of rumen pH through fluid analysis and manure consistency can help identify potential digestive problems before they become severe. Providing staff with

training on proper feeding practices and maintaining a consistent diet will help reduce digestive stress. Adding rumen buffers (e.g., sodium bicarbonate) to the diet may also help prevent acidosis.

Reflection Questions:

How does the composition of a cattle diet (e.g., fiber vs. concentrate) directly affect the microbial balance in the rumen and the overall health of the animal?

What are the key differences in digestion between ruminants (like cattle) and monogastric animals (like pigs or humans)?

How can the farm ensure that cattle transition smoothly between different types of feed while minimizing the risk of digestive issues?

BEEF CATTLE

Most beef cattle graze on large areas of open grassland that are unsuitable for growing crops. This method of feeding enables farmers to raise stock without using large numbers of workers and expensive feeds and equipment. Beef cattle have been bred to produce meat under such farming conditions.

Beef cattle have also been bred to mature earlier than



dairy cattle and to produce less milk than dairy cattle. However, steers and heifers from dairy breeds also provide excellent beef and contribute to the supply of beef.

Meat from calves that are less than three months old

is called veal. Meat from older animals is called beef. Butchers classify beef into various cuts, such as steaks and roasts. People also eat the brains, heart, kidneys, liver, pancreas and thymus, tongue, and tripe (stomach lining) of cattle.

There are six chief breeds of beef cattle. They are the Aberdeen Angus, Brahman, Charolais, Hereford, Polled Hereford, and Simmental.

Aberdeen-Angus cattle were developed in the Highlands of Northern Scotland. Brahman cattle thrive in the hot, humid climate. They were developed by crossing various kinds of Zebus, the humped cattle of India. Charolais cattle are a very large, white breed that originated in France. Hereford cattle have red bodies and white faces. They are often called whitefaces. The Hereford breed was developed in the county of Hereford in England. Polled Hereford cattle look much like Herefords but have no horns. Simmental originated in Switzerland and is found in many parts of Europe, where it is raised for beef, milk, and draft (pulling loads). Shorthorns and Polled Shorthorns are also used for beef production.

Notes

under such conditions – за таких умов

and contribute to – і сприяють

by crossing – у результаті схрещування

the humped cattle – горбата худоба

originated in – походить з

look much like – дуже подібна на

TASK 1. Answer the questions:

1. How many chief breeds of beef cattle are there?
2. Where do most beef cattle graze?
3. Do steers and heifers from dairy breeds provide excellent beef?

4. How do the butchers classify beef?

TASK 2. Is it True or False?

1. Meat from calves that are less than three months old is called veal.
2. Meat from older animals is called veal.
3. There are five chief breeds of beef cattle.
4. Most beef cattle graze on large areas of open grassland.
5. Aberdeen-Angus cattle were developed in France.

TASK 3. Choose the correct explanation:

Veal	They are often called whitefaces
Beef	They thrive in the hot, humid climate
Brahman cattle	Meat from calves that are less than 3 month old
Hereford cattle	Meat from older animals

TASK 4. Choose the appropriate answer:

1. ... cattle were developed in the Highland of Northern Scotland.
A. Aberdeen-Angus B. Brahman C. Charolais D. Hereford
2. ... cattle have red bodies and white faces.
A. Aberdeen-Angus B. Brahman C. Charolais D. Hereford
3. ... cattle thrive in the hot, humid climate.
A. Aberdeen-Angus B. Brahman C. Charolais D. Hereford
4. ... cattle are a very large, white breed.
A. Aberdeen-Angus B. Brahman C. Charolais D. Hereford

TASK 5. Cooperative Learning Exercise: Understanding Beef Cattle

Objective:

Students will work collaboratively to explore different aspects of beef cattle, including their biology, management practices, feeding strategies, and the impact of beef cattle farming on the agricultural industry. This will allow students to understand the economic, environmental, and social significance of beef cattle.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper, whiteboard, or poster board

Markers

Beef cattle case study handouts (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Start by introducing beef cattle as an essential component of the global livestock industry. Emphasize their role in producing beef, leather, and by-products that support the economy.

Explain the difference between beef cattle and dairy cattle, focusing on traits such as growth rates, meat quality, and management.

Briefly discuss the biological aspects of beef cattle, including their digestion as ruminants, breeding cycles, and how their physical traits influence their ability to produce meat efficiently.

Highlight how management practices (breeding, feeding, healthcare) affect the profitability and sustainability of beef farming.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to beef cattle:

Group 1: Beef Cattle Breeds and Genetics (Focus on different beef breeds, their characteristics, and how genetics influence meat quality and production)

Group 2: Beef Cattle Feeding and Nutrition (Focus on the dietary needs of beef cattle, including grazing, supplementary feed, and factors influencing weight gain and meat quality)

Group 3: Beef Cattle Management and Health (Focus on herd management practices, disease prevention, and ensuring cattle welfare)

Group 4: Beef Cattle Breeding and Reproduction (Focus on breeding techniques, selection criteria, and how reproductive health impacts herd productivity)

Group 5: Economic and Environmental Impact of Beef Cattle Farming (Focus on the economic contributions of beef cattle farming and the environmental considerations such as feed, land use, and sustainability)

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using available materials (books, articles, internet). They should aim to answer the following questions:

Beef Cattle Breeds and Genetics (Group 1): What are some common beef cattle breeds (e.g., Angus, Hereford, Charolais)? How do breed characteristics (e.g., growth rate, meat marbling, temperament) influence beef production? What role does genetics play in improving production efficiency?

Beef Cattle Feeding and Nutrition (Group 2): What are the nutritional needs of beef cattle for optimal growth and meat production? What types of feed (e.g., pasture, grains, silage) do beef cattle require at different stages? How do feeding practices affect the quality of beef (e.g., tenderness, fat content)?

Beef Cattle Management and Health (Group 3): What are the best practices for managing a herd of beef cattle? How can cattle health be maintained through vaccination, parasite control, and disease prevention? What are common health issues faced by beef cattle, and how can they be prevented or treated?

Beef Cattle Breeding and Reproduction (Group 4): What are the key factors in successful beef cattle breeding? How is the selection of breeding stock made based on desired traits (e.g., size, growth rate, disease resistance)? What methods (e.g., artificial insemination, natural breeding) are used to improve herd genetics?

Economic and Environmental Impact of Beef Cattle Farming (Group 5): What is the economic importance of beef cattle farming globally? What are the environmental concerns related to beef cattle farming, such as land use, water consumption, and greenhouse gas emissions? What sustainable farming practices can be implemented to reduce these impacts?

Group Collaboration (15 minutes):

After completing their research, each group will collaborate to create a visual summary (poster, infographic, or slide presentation) of their findings. The visual should include:

Key points and findings related to their assigned topic

Diagrams, charts, or images to help explain complex concepts (e.g., cattle breeds, feeding systems, reproduction cycles)

A brief explanation of how their findings relate to the larger picture of beef cattle farming

Each group member should contribute to the creation and explanation of the visual.

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear, informative, and no more than 5 minutes long. Presentations should include:

An overview of their assigned topic

Key findings, relevant statistics, and important visuals

Insights into how their topic influences the success of beef cattle farming

After each presentation, allow for a few minutes of questions or discussion from the class.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

What is the role of genetics in improving beef cattle productivity and profitability?

How can proper feeding and nutrition influence meat quality and cattle health?

What are the challenges involved in managing a beef cattle herd, and how can they be addressed?

How can beef cattle breeding programs improve herd health and performance over time?

What are the economic and environmental trade-offs in beef cattle farming, and how can they be balanced?

Encourage students to reflect on the broader implications of beef cattle farming, including its importance to food security, its environmental footprint, and the role of sustainable practices.

Wrap-Up (5 minutes):

Conclude the activity by summarizing the key takeaways about beef cattle:

The importance of breeding, nutrition, health management, and sustainability in beef cattle farming.

The need for sustainable practices to balance economic benefits with environmental responsibility.

The critical role of beef cattle in providing a major source of protein and other agricultural products for global consumption.

Assessment:

Group Work: Evaluate the depth and accuracy of each group's research and how well they collaborated to complete their task.

Presentations: Assess the clarity, organization, and engagement of the group presentations, as well as their use of visuals to enhance understanding.

Class Participation: Consider how actively students participate in the class discussion, asking questions or contributing to reflections.

A HORSE

A horse has been one of the most useful animals for thousands of years. Horses once provided the fastest and surest way to travel on land. Hunters on horseback chased animals and



killed them for food or for sport. Soldiers charged into battle on sturdy war horses.

The horse today is not as an important means of transportation as it once was. In most countries, the iron horse (a train) and a horseless carriage (an automobile) have replaced the horse almost entirely. But people still use horses for recreation, sport and work. Children and adults ride horses for fun and exercise. Large crowds thrill to the excitement of horse races. Horses perform in circuses, rodeos, carnivals, parades, and horse shows. They may be used to pull plows and to do other farm work.

Horses have a good sense of smell, sharp ears and keen eyes. They have strong teeth, but they eat only grain and plants, never meat. Long, muscular legs give horses the strength to pull heavy loads or to run at fast speeds. Horses also use their legs as their chief weapons. Most horses have good memories and can easily be trained to obey commands.

There are more than 150 breeds and types of horses and ponies. The smallest breed is the Falabella, which grows only 76 centimeters high. The largest breed of horses is the Shire, which was originally developed in England. Shires may measure more than 173 centimeters high. They may weigh more than 910 kilograms.

All breeds of horses are commonly divided into three main groups: light horses, heavy horses and ponies.

Notes

provided the (surest) way – були (найнадійнішим) засобом
to travel on land – для пересування на суші

as it once was – яким він був колись

ride for fun – їдуть верхи для забави

as chief weapons – як головну зброю

measure 173 cm high – (можуть) мати 173 см висоти

TASK 1. Answer the questions:

1. Is a horse today an important way of transportation?
2. How do people use horses today?
3. Where do horses perform?
4. Do horses eat meat?
5. How many breeds of horses are there?
6. Which breed is the largest?
7. What groups of horses do you know?

TASK 2. True or False?

1. People nowadays still use horses for transportation. F / T
2. Horses perform in circuses, rodeos, carnivals. F / T
3. Most horses have bad memories and can't be trained. F / T
4. The largest horse may weigh 910 kilograms. F / T
5. There are three groups of horses. F / T
6. Horses once provided the fastest way to travel on land. F / T
7. Horses have strong teeth, they eat only meat, never grain and plants. F / T
8. There are less than 30 breeds and types of horses. F / T

TASK 3. Fill in the missing words:

1. Hunters on horseback chased animals and killed them for _____ .
2. They may _____ to pull plows.
3. They have strong teeth, but _____ never eat.
4. Most horses have good memories and can easily be trained to _____ .
5. There are more than 150 _____ of horses and ponies.
6. The _____ breed of horse is the Shire, which was originally _____ in England.
7. All breeds are divided into _____ main groups: _____ .

TASK 4. Choose the right answer:

1. Horse has been one of the most useful animals for ...
 - a) millions of years
 - b) billions of years
 - c) thousands of years
2. People still use horses for ...
 - a) meat
 - b) sport and work

- c) industry
3. How many breeds of horses exist?
- a) more than 250 breeds
 b) more than 150 breeds
 c) less than 50 breeds
4. The smallest breed is called...
- a) the Macarella
 b) the Curebella
 c) the Falabella
5. One of the horse`s breed groups is called ...
- a) hard horses
 b) ponies
 c) little horses

TASK 5. Match the words on the left with the examples/definitions on the right:

A heavy horse	a type of an animal that is kept as a pet or on a farm
A light horse	a small horse
A breed	a type of large powerful horses used for pulling large loads
A pony	a horse that people ride and use for performances

TASK 6. Put the words in the gaps using the following words:

sports, work, plants, races, a horse, types, grain, breeds.

1.... has been one of the most useful animals for thousands of years.

2. People still use horses for ... and

3. Horses have strong teeth, but they eat only ... and ..., never meat.
4. Large crowds thrill to the excitement of horse
5. There are more than 150 ... and ... of horses and ponies.

TASK 7. Write the sentences in the Past Indefinite Tense:

1. Last year I (spend) ... my holidays in the Carpathians.
2. It (be) ... great.
3. I (go) ... to horse races with my grandfather.
4. There I (try) ... to ride a horse.
5. It (be) ... a very interesting experience for me.
6. I (enjoy) ... that holiday so much.

TASK 8. Story Telling in the Present Continuous Tense:

1. It's Saturday, my favorite day of the week. I 1) (to walk) in the garden with my big happy family. My mother and father 2) ... (to prepare) dinner for us. My sister 3)...(to ride) a horse. My grandfather always goes to the horse races on Saturdays. He feels himself satisfied there. Today he 4) ... (to go) to the races too. I'd like to go with him, but now I 5)...(to teach) my little sister how to ride a horse.

TASK 9. Learn more about horses. Fill in a necessary word from the list:

wild, breeding, a stallion, tail, domestic, a mare, a stable, a foal, hooves, paddocks, herbivorous, horns, neigh, a hide, troops, mane, mammals.

1. Horses nourish their young, so they are... .
2. A male horse is called ... and a female one is called ...
3. Horses are kept in
4. A horse gets rid of flies by flickering its
5. A newborn horse is called
6. The horse hurt one of his ... in the race.

7. Modern horses are the result of centuries of selective ...
8. Horses are trained on
9. Horses eat grass, so they are ... animals.
10. Horses living in nature are called
11. Horses who are bred on farms are called ... ones.
12. Horses have no
13. Horses don't speak. They
14. A horse's coat is called
15. Horses gather in
16. A horse has a wonderful

TASK 10. Match the words and their definitions. Try to translate them:

- | | |
|--------------|--|
| A paddock | 1. An enclosed area in a building for a horse |
| A stable | 2. A sports event in which people compete to show their skill in riding horses |
| A stall | 3. A small field in which horses are kept |
| A horseshoe | 4. A building where horses are kept |
| A horsebox | 5. A U-shaped piece of iron that is fixed onto the bottom of a horse's foot |
| A horse fly | 6. Someone who rides horses |
| A horseman | 7. A sport in which horses with riders race against each other |
| A groom | 8. Someone whose job is to feed, clean, and take care of horses |
| A horse show | 9. A large vehicle for carrying horses, often pulled by another vehicle |

TASK 11. Make up a dialogue between a student and a horse keeper using the above-mentioned words. Use the following patterns:

Could you tell me, please...

I would like to know...

I am interested in ...

I wonder if ...

Could you explain me, please...

TASK 12. Idioms. Match an idiom with its description. Try to find Ukrainian equivalents:

1. To have something straight from the horse's mouth	a. The process of matching people with suitable jobs or activities
2. Horses for courses	b. Common sense
3. A two horse race	c. Be grateful for something that has been given to you
4. That's a horse of a different color	d. To waste time or effort by trying to do something that is impossible
5. Put the cart before the horse	e. It is something that is completely different from another thing
6. You can lead a horse to the water but you can't make it drink	f. Waves in the sea or on a lake white at the top.
7. A stalking horse	g. An election that only two competitors can win
8. Horse sense	h. Do it more slowly or carefully
9. A dark horse	i. Something or somebody that hides someone's true purpose, especially a politician who

	says he wants his leader's job when the real plan is that another, more important politician should get it
10. Never look a gift horse in the mouth	j. Nobody can make a person be happy
11. To be on one's high horse	k. To do two things in the wrong order
12. To flog a dead horse	l. Someone who is not well known, and who surprises people by winning a competition or doing something very well
13. Hold your horses!	m. To get information from someone who has direct knowledge of it
14. White horses	n. To be too proud of oneself

TASK 13 AT HOME. Prepare a project about different breed of horses. Take into consideration the history of different breeds, their usage by a human, how they were bred, how much they worth today and where they are used currently.

TASK 14. Cooperative task on horses.

Cooperative Learning Exercise: "All About Horses!"

Objective: Students will work in groups to research different aspects of horses and present their findings to the class in an interactive and creative way. The focus will be on the physical characteristics, history, uses, and cultural significance of horses.

Step 1: Group Formation (5 minutes)

Divide the class into small groups of 3-4 students.

Assign each group a specific aspect of horses to research. Possible topics include:

Physical Characteristics: Body structure, colors, breeds, etc.

Horse Breeds: Different breeds of horses and their purposes (e.g., racehorses, draft horses).

Horse Care: How to take care of a horse (feeding, grooming, stable care).

Horses in History: The role of horses in human history, such as transportation, warfare, and agriculture.

Horse Behavior and Communication: How horses communicate with each other and with humans.

Horses in Culture and Sports: The role of horses in sports (e.g., polo, racing, rodeo) and their cultural significance.

Step 2: Research Phase (20 minutes)

Each group will:

Research their assigned topic using books, the internet, or any available resources.

Gather key information and interesting facts to present. Be sure to focus on answering important questions like:

What are the main features or facts about this aspect of horses?

Why is it important or interesting for people who care about horses?

Any fun facts or surprising information they can share with the class.

Step 3: Creative Presentation Preparation (15 minutes)

Each group will prepare a creative presentation to share with the class. Here are a few ideas for how they can present their findings:

Poster or Infographic: Create a visually appealing poster or infographic that showcases their information (with pictures, facts, and diagrams).

Role-Playing or Skit: Act out a scenario (e.g., showing how to care for a horse, or re-enacting a historical event involving horses).

Multimedia Presentation: Create a simple slideshow or video using images, music, and voiceover to explain their topic.

Interactive Demonstration: Create a demonstration that involves the class, such as a fun quiz or a mini "horse care" workshop where the class participates.

Step 4: Presentations (5-7 minutes per group)

Each group will present their findings to the class. Encourage the students to be interactive, ask questions, and engage with their classmates. Here are a few things to consider:

Present information in a clear and organized way.

Make the presentation fun and interactive (incorporate questions, visuals, or a game).

Answer questions from the class to encourage discussion.

Step 5: Reflection and Discussion (10 minutes)

After all groups have presented, hold a class discussion. Students can reflect on what they learned about horses and how different aspects of horse care, behavior, and history are all connected. Some discussion questions could be:

How do horses impact human lives today?

What surprised you the most about horses in history?

Why do you think horses are so important in various cultures and sports?

Assessment Criteria:

Collaboration: Did all members of the group contribute to the research and presentation?

Content Knowledge: Did the group provide accurate and comprehensive information on their topic?

Creativity: Was the presentation engaging and creative?

Communication: Did the group effectively communicate their findings to the class?

INTERESTING FACTS ABOUT HORSES

- Horses can sleep both lying down and standing up.
- Horses can run shortly after birth.
- Domestic horses have a lifespan of around 25 years.
- A 19th century horse named ‘Old Billy’ is said to have lived 62 years.
- Horses have around 205 bones in their skeleton.
- Horses have been domesticated for over 5000 years.
- Horses are herbivorous (plant eaters).
- Horses have bigger eyes than any other mammal that lives on land.
- Because horses’ eyes are on the side of their heads they are capable of seeing nearly 360 degrees at one time.
- Horses gallop at around 44 kph.
- The fastest recorded sprinting speed of a horse was 88 kph.
- Estimates suggest that there are around 60 million horses in the world.
- Scientists believe that horses have evolved over the past 50 million years from much smaller creatures.
- A male horse is called a stallion.
- A female horse is called a mare.
- A young male horse is called a colt.
- A young female horse is called a filly.

Case Study Exercise: Horse Health and Management

Scenario: You are a veterinarian working for a large equestrian facility that trains and cares for a variety of horses, including

racehorses, showjumpers, and leisure riding horses. The facility has recently noticed some changes in the health of several horses, particularly a noticeable decline in performance, loss of appetite, and some digestive issues. One of the horses, a 7-year-old thoroughbred named Starfire, has been showing signs of lethargy, poor coat condition, and occasional colic episodes.

The owner has requested your help to investigate the issue and develop a plan to improve the horses' overall health and performance. The horses are fed a mix of hay, grain, and some supplemental feed, with daily turnout in paddocks. The horses also receive regular exercise and training.

Your Task:

Assessing Horse Diet and Nutrition:

Starfire's Diet: The horse is fed a combination of timothy hay, a grain mix designed for performance horses, and a supplement containing vitamins and minerals. However, the farm has recently changed from a high-fiber diet (mostly grass hay) to more grain-based feeds.

What are the potential effects of the change in diet on Starfire's digestive health and performance? Consider the importance of fiber for horses and how an imbalance in fiber and starch (grain) may affect the horse's digestive system.

Example:

A diet with too much grain and not enough fiber can lead to digestive issues such as colic and gastric ulcers. Horses are designed to graze on high-fiber diets (grass and hay), and a sudden shift to grain can disrupt their normal gut flora, leading to upset stomachs, lethargy, and decreased performance.

Colic Investigation and Management:

Colic is a common digestive issue in horses, and Starfire has had a few episodes. Based on the symptoms (lethargy, poor coat, colic), what potential causes could you investigate?

How would you approach diagnosing the type of colic Starfire might be experiencing? What diagnostic tools would you use (e.g., physical exam, rectal exam, abdominal ultrasound, blood tests)?

What are the immediate steps to manage a mild case of colic, and how would you decide if veterinary intervention is required?

Example:

Colic can be caused by a number of factors, including gastric ulcers, intestinal impaction, twisted gut, or dietary imbalances. I would start by performing a thorough physical exam and a rectal exam to check for any physical obstructions or pain. Blood work could help identify any metabolic issues, while an ultrasound would be useful to look for signs of twisting or other abdominal issues. If Starfire shows no signs of severe distress, the colic could be managed with pain relief, gentle walking, and fasting, but if the condition worsens, immediate veterinary intervention would be required.

Exercise and Performance Decline:

Performance decline in horses can be due to several factors, including poor nutrition, overtraining, or medical conditions like laminitis or equine metabolic syndrome (EMS).

What aspects of Starfire's training regimen might be contributing to the performance decline? How can you balance the training and recovery periods to ensure optimal performance?

What specific tests or examinations would you perform to rule out other potential causes, such as lameness or metabolic

disorders?

Example:

Overtraining or insufficient recovery time could lead to fatigue and performance decline. To investigate further, I would check for any signs of lameness or muscle soreness by performing a lameness exam. Blood tests and glucose regulation tests could help rule out EMS or insulin resistance as contributing factors. In addition, reviewing Starfire's exercise schedule and ensuring adequate rest would help prevent overtraining.

Horse's Coat and General Health:

Starfire has been showing signs of a poor coat condition. Poor coat quality in horses can be a sign of nutritional deficiencies, stress, or medical conditions.

How can you link the changes in Starfire's coat condition to his overall health, particularly focusing on protein deficiencies, vitamin and mineral imbalances, or stress-related issues?

What dietary changes or supplements could you recommend to improve Starfire's coat and overall vitality?

Example:

A poor coat can be a sign of protein deficiency (which affects hair growth) or vitamin/mineral imbalances. Ensuring Starfire receives a balanced diet with enough high-quality protein (like alfalfa hay or a specific equine protein supplement) and adding omega-3 fatty acids or biotin to his diet may improve his coat condition. If stress is a factor (e.g., from training), managing stress and providing additional recovery time can also help.

Preventive Measures and Long-Term Health Plan:

After addressing the immediate health concerns, what long-term health and nutritional management strategies would you implement to prevent further digestive issues, colic, and performance decline in Starfire and other horses on the farm?

How can you ensure that the horses are receiving a balanced diet that supports both their digestive health and performance needs?

What role do regular veterinary check-ups and health monitoring play in this process?

Example:

A more balanced, fiber-rich diet should be emphasized, with a gradual introduction of grains to avoid digestive upsets. Implementing a regular feeding schedule, ensuring the availability of fresh forage, and adding digestive aids (e.g., probiotics or prebiotics) could help improve gut health. Regular veterinary check-ups, including abdominal ultrasounds and blood tests, should be part of a comprehensive health monitoring program to catch issues before they become severe.

Reflection Questions:

How does a horse's digestive system differ from that of other livestock, and why is it particularly sensitive to sudden diet changes?

What are the potential long-term effects of poor nutrition or digestive health on a horse's performance and overall well-being?

How would you balance the demands of training and recovery for a performance horse to ensure it remains healthy and productive in the long run?

A HOG

About a fourth of the meat eaten in Europe and the United States comes from hogs. These animals provide pork,

which is eaten as pork chops, ham, bacon and sausage. The fat, skin, hair, glands and other parts of hogs are used to make a variety of products. These products include lard, leather, brushes, soap, fertilizer, glue, and medicines.

Farmers in almost every country raise hogs. Both young and adult hogs are also called pigs or swine. Young hogs are almost always called pigs. Hogs are among the most intelligent of the domesticated (tamed) animals. Some people consider them dirty, yet hogs keep themselves cleaner than most other farm animals do. However, during warm weather, hogs often roll about in mud to keep cool.

There are about 840 million hogs on farms throughout



the world. China has the most hogs, about 40 per cent of the world total. Hogs rank with cattle and poultry as an important source of farm income.

There are many kinds of hogs raised around the world. Because hogs have short reproduction cycle, new breeds can be developed over a relatively short period of time. Often, such breeds of hogs reflect the climate and production methods of the region in which they are raised. In Europe, for example, each country has developed its own breeds of hogs. Common breeds of hogs include here the Large White and the Landrace. All such hogs are white and have droopy ears.

Farmers in the United States raise chiefly crossbred hogs. Crossbred hogs are produced by mating parents of different breeds. Crossbreeds, also called hybrids, are more active at birth, grow more rapidly and have high reproduction rates.

Notes

about a fourth – майже одна четверта
consider them dirty – вважають їх брудними
to keep cool – щоб охолодитися
of the world total – від усієї кількості у світі
by mating parents – паруванням батьків
reproductive rates – відтворювальні показники

TASK 1. Answer the questions:

1. What kinds of products are hogs used for?
2. How do people call young hogs?
3. How many hogs are there all over the world?
4. Do hogs have short or long reproduction cycle?
5. Name two common breeds of hogs.
6. What are Crossbred hogs?
7. What qualities do the Crossbred hogs have?

TASK 2. True or False?

1. Farmers in almost every country raise hogs. T / F
2. Hogs are among the most stupid domesticated animals. T / F
3. Hogs are considered to be dirty. T / F
4. Breeds of hogs reflect the climate of the region in which they are raised. T / F
5. Farmers in the United States raise chiefly Large White hogs. T / F

TASK 3. Fill in the missing words:

1. _____
and other parts of hogs are used to make a variety of products.
2. Young hogs are almost always called _____ .
3. During _____ weather, hogs often roll about in mud to _____.
4. Hogs rank with cattle _____ as an important source of farm income.
5. In Europe each country has developed _____ .
6. Common breeds of hogs include _____ and _____.
7. Crossbred hogs are produced by _____ parents of different breeds.

TASK 4. Choose the right answers:

1. How are hogs also called?
 - a) swine
 - b) boar
 - c) pig
2. Hogs are ...
 - a) wild animals
 - b) domesticated animals
 - c) pets
3. How many hogs are there throughout the world?
 - a) about 760 000 000
 - b) about 457 000 000
 - c) about 840 000 000
4. There ...
 - a) are different breeds of hogs in every country
 - b) is only one breed
 - c) are 100 breeds throughout the world
5. Crossbred hogs are ...
 - a) produced by mating parents of different breeds
 - b) produced by mating parents of the same breed
 - c) not produced; they are an independent breed

TASK 5. Match the words on the left with the examples/definitions on the right:

mud	a large pig that is kept for its meat
a hog	wet earth that has become soft and sticky
a crossbreed	pigs' meat
pork	a breed that results from crossing different breeds

TASK 6. Put the words in the gaps:

hogs, million, pigs, crossbred, pork, swine.

1. There are many kinds of ... raised around the world.
2. Hogs provide ..., which is eaten as chops, ham, bacon, and sausage.
3. Both young and adult hogs are also called ... or
4. There are about 840 hogs on farms throughout the world.
5. Farmers in the USA raise chiefly.... hogs.

TASK 7. The Present Simple Tense. Filling in the gaps:

1. Hogs (to be) one of the most intelligent domestic animals.
2. In Europe each country ... (have) its own breed of hogs.
3. Hogs ... (have) a little reproduction cycle.
4. Farmers in the USA ... (raise) chiefly crossbred hogs.
5. Crossbreeds, also called hybrids, ... (to be) more active at birth, ... (to grow) more rapidly and ... (to have) high reproduction rates.

TASK 8. Fill in “was or “were”:

1. Last summer I ... on my grandfather's farm.
2. My parents afraid of hogs.

3. I ... in a danger because one hog was trying to attack me.
4. My grandfather calmed it down, and I ... happy.

TASK 9. Write sentences in the Present Continuous Tense:

1. I/ across / the road /walk/now.
2. Jane and Jack /a hog/ look / for.
3. They/to/find/try/it.
4. My grandfather/them/laugh/at.
5. I/read/a/now/about/book/hogs.

TASK 10. Prepare a project about raising hogs in Ukraine. Is it an important branch of animal husbandry in our country? Take into account breed and their features, the conditions of their keeping, farms, feeding aspects, vaccination and main diseases.

TASK 11. Cooperative Learning Exercise: "All About Hogs!"

Objective:

Students will work in groups to research different aspects of hogs (pigs), such as their physical characteristics, diet, uses, behavior, and role in human society. They will then present their findings creatively to the class.

Step 1: Group Formation (5 minutes)

Divide the class into small groups of 3-4 students.

Assign each group a specific aspect of hogs to research. Possible topics include:

Physical Characteristics: Appearance, size, color, and special features of hogs.

Hog Breeds: Different breeds of pigs (e.g., Yorkshire, Berkshire, Duroc) and their uses in farming.

Hog Care: How to take care of hogs, including feeding, housing, and health.

Diet and Feeding Habits: What do hogs eat, and how does their diet affect their growth?

Hogs in Agriculture: The role of hogs in farming, including meat production (pork), waste management, and other uses.

Hogs in Culture: The role of hogs in culture, folklore, or sports (e.g., pig racing, cultural significance).

Behavior and Communication: How hogs behave and communicate with each other and humans.

Step 2: Research Phase (20 minutes)

Each group will:

Research their assigned topic using available resources like books, websites, and videos.

Gather key information, interesting facts, and visuals to present.

Encourage the group to focus on answering the following:

What are the main features or facts about this aspect of hogs?

Why is this information important or interesting for understanding hogs?

Any fun or surprising facts that would engage the class.

Step 3: Creative Presentation Preparation (15 minutes)

Each group will prepare a creative and engaging presentation to share with the class. Possible ideas for creative presentations include:

Poster/Infographic: Create a visual representation of their research using posters, infographics, or charts with images, facts, and diagrams.

Role-Playing or Skit: Act out a scenario, such as the daily life of a hog on a farm or a demonstration of hog care and feeding.

Multimedia Presentation: Use a slideshow, video, or animation that includes images, videos, and voiceovers explaining their research.

Interactive Game or Quiz: Create a fun quiz or trivia game about hogs for the class to participate in.

Step 4: Presentations (5-7 minutes per group)

Each group will present their findings to the class in a creative and informative manner. Students should:

Make sure their presentation is clear and easy to follow.

Engage the audience by asking questions, using visuals, or incorporating interactive elements.

After each presentation, allow the class to ask questions or offer additional information they may know about the topic.

Step 5: Reflection and Discussion (10 minutes)

After all the groups have presented, hold a class discussion. Some guiding questions might include:

What are some of the unique characteristics of hogs that surprised you?

How do hogs contribute to agriculture and human societies?

Why do you think hogs have such a strong cultural presence in certain societies (e.g., pig races, folklore)?

How do hogs communicate and show emotions?

Encourage students to reflect on the broader importance of hogs in the natural world and in human life.

Assessment Criteria:

Collaboration: Did all members of the group participate in the research and presentation?

Content Knowledge: Did the group provide accurate and comprehensive information about their assigned topic?

Creativity: Was the presentation engaging and creative?

Communication: Did the group effectively communicate their findings and engage the class?

INTERESTING FACTS ABOUT HOGS

- Pigs are intelligent animals.

- Like humans, pigs are omnivorous, meaning they eat both plants and other animals.
- A pig's snout is an important tool for finding food in the ground and sensing the world around them.
- Pigs have an excellent sense of smell.
- Some people like to keep pigs as pets.
- Wild pigs (boars) are often hunted in the wild.

PIG FACTS

♥ Pigs sing to their young while nursing.

♥ Scientists rank pigs as one of the most intelligent animals, following closely behind apes and dolphins.

♥ Pigs like to snuggle and prefer to sleep nose to nose. They dream just as humans do.



- In some areas of the world, wild boars are the main source of food for tigers.

- Feral pigs that have been introduced into new areas can be a threat to the local ecosystem.

- Pigs can pass on a variety of diseases to humans.

- In

comparison to their body size, pigs have small lungs.

Case Study Exercise: Managing the Health and Productivity of Pigs.

Scenario: You are a veterinary consultant hired by a large commercial pig farm that produces both breeding stock and market pigs. The farm has been facing some challenges in recent months, particularly a noticeable drop in weaning weights, increased mortality rates among piglets, and some signs of digestive disturbances in the adult pigs. The farm manager is

concerned about the potential causes of these issues, which may be related to the pigs' diet, housing, or overall health management practices.

The pigs are housed in modern farrowing and finishing barns, with access to high-quality feed and water. However, the feeding program was recently altered to include a higher proportion of corn-based feed in an attempt to increase weight gain in market pigs. The piglets are weaned at around 3 weeks of age and are currently being fed a starter feed that is supposed to support their growth and development.

The farm manager has asked for your assistance in investigating the problem and providing recommendations to improve the pigs' health, weaning success, and overall productivity.

Your Task:

Assessing the Pig Diet:

The pigs are being fed a diet that has recently shifted to a higher proportion of corn in the ration. Discuss the potential impact of a corn-based diet on pig growth, digestion, and overall health.

How might an unbalanced diet, particularly one that lacks sufficient fiber or protein, affect the pigs' health, especially in terms of digestive issues and growth performance?

Example:

A high-corn diet is high in carbohydrates but low in fiber and essential amino acids. This could lead to digestive upset, constipation, and diarrhea in pigs. Additionally, the lack of sufficient protein could hinder proper muscle development and growth, particularly in the young pigs. An unbalanced diet can also increase the risk of gut health issues, such as enteric

diseases or gastric ulcers, which are common in pigs fed excessive amounts of cereal grains.

Weaning and Piglet Health:

The farm has seen a decline in weaning weights and an increase in piglet mortality. Based on these symptoms, what could be the potential causes of poor piglet performance after weaning? Consider factors such as weaning stress, nutrition, and housing conditions.

What dietary changes would you recommend to improve piglet growth and survival rates post-weaning? What role does colostrum intake and early nutrition play in piglet health?

Example:

Weaning stress can significantly affect piglet health and growth, leading to reduced feed intake and poor immune function. A lack of colostrum in the first few hours after birth may compromise the piglets' ability to fight infections and lead to poor growth. To improve weaning success, I would recommend ensuring piglets receive adequate colostrum, a high-quality weaning diet rich in protein (such as whey protein or soy), and offering palatable starter feeds to help them adjust to solid food quickly. I would also suggest ensuring a stress-free environment with proper temperature and social groupings.

Managing Digestive Health and Diseases:

The adult pigs are showing signs of digestive disturbances such as diarrhea, bloating, and poor feed conversion. What are some potential digestive health issues that could be occurring, such as colitis, swine dysentery, or intestinal infections?

What diagnostic steps should be taken to confirm any of these conditions (e.g., fecal analysis, blood tests, clinical examination)?

How can you help the farm prevent future digestive issues and ensure the pigs' gut health is optimized?

Example:

Swine dysentery, caused by *Brachyspira hyodysenteriae*, and colitis caused by other infections could be behind the digestive disturbances. A fecal sample should be analyzed to check for pathogens, and blood tests can assess the pig's overall health and hydration levels. To prevent digestive diseases, I would recommend implementing strict biosecurity protocols, improving hygiene in housing, and possibly incorporating probiotics or prebiotics into the diet to improve gut health.

Breeding and Reproductive Health:

The farm also has breeding stock, and the reproductive performance of the sows seems to be declining. Some sows have been showing signs of low conception rates and poor lactation performance.

What could be contributing to these reproductive challenges? Consider factors such as nutrition, stress, management practices, and health issues like Porcine Reproductive and Respiratory Syndrome (PRRS).

How can you recommend improving the health and productivity of the breeding herd?

Example:

Poor nutritional management, such as inadequate energy or protein intake, can result in poor fertility and inadequate milk production. Additionally, PRRS or other reproductive diseases can affect conception rates and piglet survival. I would recommend a balanced diet for sows, particularly focusing on energy and protein around breeding and lactation periods, as well as implementing a vaccination program for diseases like PRRS.

Maintaining low-stress conditions and good health management practices will also help improve reproduction rates.

Long-Term Health and Productivity Plan:

Based on the issues identified in this case, what long-term health and management practices would you recommend to improve the overall health, growth, and productivity of the pigs on this farm? How can the farm implement a more balanced, sustainable feeding strategy that supports both the health of the pigs and the farm's productivity goals?

What role does regular health monitoring and veterinary care play in the long-term management of pig health?

Example:

I would recommend developing a comprehensive feeding strategy that includes adequate fiber, protein, and minerals to support growth and digestion. Rotating between grain-based and fiber-rich feeds and offering a variety of protein sources would balance energy and nutrients. Implementing a health monitoring program that includes regular check-ups, blood work, and disease screening would ensure any health issues are caught early. A strong biosecurity and vaccination program would reduce the risk of infectious diseases.

Reflection Questions:

How does nutrition during the early life stages (weaning) affect the long-term health and productivity of pigs?

What are the main differences between a pig's digestive system and that of other livestock, and why is it important to tailor their diet accordingly?

How can changes in management practices, such as housing, feeding, and disease prevention, improve the overall health and performance of pigs on a commercial farm?

A SHEEP

Sheep are among the most important animals that people have tamed because they provide both food and clothing. Today, sheep are raised in all parts of the world. Australia is the world's leading sheep-producing country. In Australia, there are about 10 sheep per every person. In New Zealand, there are about 20 sheep per every person. Sheep yield wool, meat, milk, and leather. They also furnish the raw materials for many by-products, such as glue, tallow, soap, fertilizer, cosmetics and the catgut that is used in tennis rackets.

Domestic sheep vary greatly in size. The ewes (females)



of some breeds may weigh 45 kilograms, while the ewes of some other breeds may weigh more than 102

kilograms. The rams (males) are larger. Their weight, including a heavy coat of wool, ranges from 68 to 159 kilograms.

The horns of a ram usually curve outward. In some breeds, both rams and ewes have horns. In other kinds, only the rams have horns, or the breed is hornless. Sheep walk upon hooves that are divided into two toes. The upper part of their legs is muscular, helping them to move quickly. Most sheep have tails, but these are often cut off.

Sheep can bite off grass much closer to the ground than cattle can. In fact, where too many sheep are allowed to graze, plant life may be severely damaged.

Sheep live for an average of seven years, but some live as long as 13. Most ewes give birth to one or two lambs at a time. The mother carries the lambs in her body for about five months before they are born. Ewes can begin breeding at the age of six months, but most producers do not allow them to do so until they are about 1.5 years old.

Notes

sheep-producing – вівчарство

vary in size – відрізняються за розміром

curve outward – вигинатися назовні

closer to the ground – ближче до землі

for an average of seven years – у середньому сім років

as long as 13 (years) – аж до 13 (років)

give birth to – народжують

TASK 1. Answer the questions:

1. What do sheep provide?
2. Name two countries, where there are a lot of sheep.
3. What do sheep produce?
4. How are female and male sheep called?
5. Do all sheep have horns?
6. What do farmers usually do with sheep's tails?
7. How long do ewes carry their lambs in their body?

TASK 2. True or False?

1. Today, sheep are raised in all parts of the world. T / F
2. In New Zealand, there are about 10 sheep per every person. T / F
3. The ewes are bigger than the rams. T / F
4. Sheep do not live a very long life. T / F
5. Ewes can give birth at the age of six months. T / F

TASK 3. Fill in the missing words:

1. In _____, there are about 10 sheep per every person. In New Zealand, there are about _____.
2. Sheep yield _____.
3. The ewes (_____) of some breeds may weigh 45 kilograms, while the ewes of _____ may weigh more than 102 kilograms.
4. Sheep walk upon _____ that are divided into _____.
5. Where too many sheep are allowed to _____, plant life may be _____.
6. Most ewes _____ to one or two lambs _____.
7. _____ can begin _____ at the age of six months.

TASK 4. Choose the right answer:

1. What are sheep used for?
 - a) providing food, clothing
 - b) sport
 - c) keeping as a home pet
2. Do all sheep have horns?
 - a) yes, they do
 - b) sheep have no horns at all
 - c) some breeds have horns, some breeds are hornless
3. Sheep's tails are ...
 - a) long
 - b) short or cut off
 - c) absent
4. Sheep live approximately ...
 - a) from 5 to 7 years
 - b) from 7 to 13 years

- c) from 15 to 18 years
5. Most ewes give birth to ...
- a) one or two lambs at a time
- b) three or four lambs at a time
- c) two or three lambs at a time

TASK 5. Put the words in the gaps:

meat, Australia, milk, tails, ewes, give birth

- 1 ... is the world's leading sheep-producing country.
2. Sheep yield wool, ..., ..., and leather.
3. The of some breeds may weight 45 kilograms.
4. Most sheep have ... but these are often cut off.
5. Most ewes to one or two lambs at a time.

TASK 6. Match the words on the left with the examples/definitions on the right:

a horn	a farm animal that is kept for its wool and its meat
a sheep	a hard pointed thing that grows, usually in pairs, on the heads of cows, goats and some other animals
an ewe	a hard foot of a horse, a cow, etc.
tallow	a female sheep
a hoof	hard animal fat

TASK 7. Write sentences in the Present Simple Tense:

1. In New Zealand, there (be) about 10 sheep per person.
2. Sheep (to be) among the most important animals that people have tamed.
3. Most sheep (to have) tails.

4. An ewe (to carry) the lambs in her body for about 5 months before they are born.

TASK 8. Choose “was” or “were”:

1. Yesterday I and my sister ... in the country, at my grandfather’s house.
2. There ... so many sheep that I couldn’t count them all.
3. One sheep ... in trouble.
4. It ... tired and unwell.
5. We ... sorry for it.

TASK 9. Read and guess whether these statements are true or false:

1. Sheep are known to self-medicate when they have some illnesses. They will eat specific plants that can cure them.
2. Sheep are pregnant for 9 months just like people.
3. Egyptians believed that sheep were sacred. They even had them mummified when they died, just like humans.
4. Sheep have an acute sense of smell.
5. Sheep have very good memories. They can remember sheep and humans for years.

TASK 10. Read the article and fill in the correct form of the verb:

HOW TO RAISE SHEEP

(By Lauren Ware)

Why Raise Sheep?

People have raised sheep for milk, meat and wool for thousands of years. Sheep _____ (to have) some advantages over other

types of livestock: they _____ (to be) relatively small and easy to handle, compared with cows and pigs. They _____ (not / to need) a lot of space.

Sheep _____ (to be) gentle and docile.

Buying Sheep

Make sure that you purchase sheep directly from the person who raised them . _____ (to look) at the flock the sheep comes from. _____ (to talk) with the farmer about the sheep's history. _____ (to check) the sheep's physical condition: eyes should be clear and bright; teeth should not be worn or missing. The lower jaw must not be undershot or overshot. _____ (to check) the head and neck for lumps or swelling, which may mean an untreated worm infestation or abscess. The sheep should have a wide back and deep body and not be too thin or too fat.

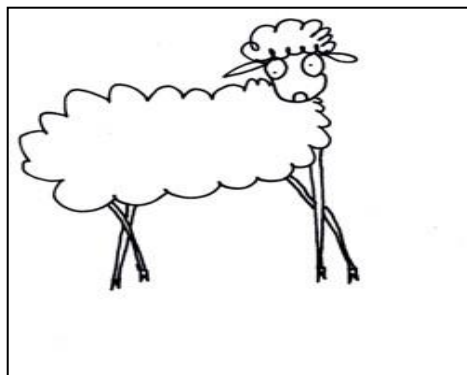
Care and Feeding of Sheep

You can use a characteristic of sheep to your advantage. They _____ (to love) grain, peanuts and apples. Be careful not to make sheep think you are chasing them. Sheep _____ (to have) only one defence against predators or danger: to bunch together and run to escape. Sheep _____ (to be) ruminants, meaning they _____ (to eat) plants like fresh grass and hay. Their main feed _____ (to be) pasture grasses, salt, a vitamin and mineral supplement, and fresh water. Sheep _____ (to need) salt – it can be granulated or loose.

Fencing and Shelter for Sheep

The best type of fence for sheep _____ (to be) a smooth-wire electric or woven wire fencing.

Sheep _____ (not/ to need) much protection – they _____ (to prefer) to have a simple, south-facing, three-sided shed to protect them from the worst of the rain, cold, snow and wind.



Task 11. Language work: guess the translations for the words in the table from the following list:

отара; вовна; огорожа; сіль; хижак; перевага; зараження паразитами; захист; жуйна тварина; пухлина; щелепа; сіно; нарив; переслідувати (гнати); зерно; добавка.

wool <i>n</i>	[wʊl]	
flock <i>n</i>	[flɒk]	
predator <i>n</i>	['predətə]	
infestation <i>n</i>	[infes'teɪʃ(ə)n]	
abscess <i>n</i>	['æbses]	
grain <i>n</i>	[greɪn]	
supplement <i>n</i>	['seplɪmənt]	
salt <i>n</i>	[sɔ:lt]	
hay <i>n</i>	[hei]	

advantage <i>n</i>	[əd'vɑ:ntɪdʒ]	
ruminant <i>n</i>	['ru:mɪnənt]	
jaw <i>n</i>	[dʒɔ:]	
fence <i>n</i>	[fens]	
chase <i>v</i>	[tʃeɪs]	
lump <i>n</i>	[lʌmp]	
defence <i>n</i>	[dɪ'fens]	

TASK 12. Prepare a project about raising sheep in Ukraine. Is it an important branch of animal husbandry in our country? Take into account breed and their features, the conditions of their keeping, farms, feeding aspects, vaccination and main diseases.

TASK 13. Cooperative Learning Exercise: "All About Sheep"

Objective:

Students will work collaboratively to research, discuss, and present information about sheep, focusing on their characteristics, importance, and role in agriculture. They will develop teamwork, communication, and presentation skills.

Group Formation:

Divide the class into 4 groups of 4 students each.

Each group will focus on a specific aspect of sheep.

Roles within each group:

Researcher: Gathers information from provided sources (books, websites, videos, etc.) and shares findings with the team.

Writer: Takes notes and helps the group organize key information in a clear, understandable format.

Presenter: Prepares a short presentation to explain the group's findings.

Timekeeper: Ensures the group stays on task and within the allotted time for each section of the project.

Topics for Each Group:

The Biology of Sheep

Physical characteristics (e.g., wool, hooves, digestive system)

Reproduction and lifespan

Different breeds of sheep and their features

Sheep in Agriculture

The role of sheep in farming and ranching

Products derived from sheep (e.g., wool, milk, meat)

The economic importance of sheep in different regions

Care and Management of Sheep

Sheep habitats and farming practices

Feeding, grooming, and health care

Sheep predators and protection strategies

Sheep in History and Culture

The history of sheep domestication

Cultural significance of sheep (e.g., in mythology, religion, and folklore)

The role of sheep in different societies

Steps:

Step 1: Research (20 minutes)

Groups will spend time researching their assigned topic. Each group member must contribute their findings, and they should ensure that the information is relevant and accurate.

Step 2: Organize Information (15 minutes)

After collecting the necessary information, the group will organize their notes into clear, concise sections, focusing on the most important details.

Step 3: Group Discussion (10 minutes)

The group will discuss their findings, ensuring everyone understands the material. They will practice presenting their topic to each other.

Step 4: Prepare a Presentation (15 minutes)

The group will collaborate on creating a visual aid (e.g., a poster, slide show, or handouts) to accompany their presentation. The presenter will rehearse the delivery, ensuring they can explain the key points clearly.

Step 5: Presentations (5 minutes per group)

Each group will present their findings to the class. The other groups will listen, ask questions, and engage in a brief discussion at the end of each presentation.

Reflection & Evaluation:

After all presentations, ask students to reflect on what they learned from the exercise.

Self-Evaluation: Each student will complete a self-evaluation form, where they rate their own contributions to the group and the overall group dynamics.

Peer Evaluation: Students will evaluate their teammates' contributions to the project, focusing on collaboration and effort.

Additional Task.

1. Create a sheep-related quiz or trivia game for the class based on what they learned.
2. Discuss sustainable farming practices and how sheep farming can be more eco-friendly.

Case Study Exercise: Managing the Health and Productivity of Sheep.

Scenario: You are a veterinary consultant for a mid-sized sheep farm that produces both wool and meat. The farm has around 200 ewes, and they have recently started noticing some health and productivity issues. Several sheep are showing signs of weight loss, poor wool quality, and reduced fertility. The farm also experienced a few cases of lamb mortality in the last few months, and the lambs that survived seem to be growing slower than expected.

The farm manager has recently made changes to the feeding program, increasing the grain portion of the sheep's diet while decreasing the amount of pasture and roughage available. Additionally, the sheep are housed in pens for most of the day, and the manager believes the animals might be experiencing some stress due to changes in housing conditions.

The farm manager is concerned that these issues may be linked to nutrition, disease, or environmental stress, and has asked for your help in identifying the potential causes and solutions.

Your Task:

Assessing the Diet and Nutritional Management:

The farm has recently shifted to a more grain-based diet, with less access to pasture and roughage. Discuss the potential impacts of this dietary change on the rumen health, wool quality, and overall health of the sheep.

How does the fiber content in the diet of sheep impact their digestive health, and why is it important to ensure a balanced diet that includes sufficient roughage?

Example:

Sheep are ruminants and require high levels of fiber (from grass or hay) to promote proper rumen function and digestion. A diet that is too high in grain and low in fiber can disrupt rumen fermentation, leading to digestive issues like bloat, acidosis, and poor nutrient absorption. Additionally, inadequate fiber may negatively impact wool quality due to deficiencies in essential nutrients, as fiber plays a crucial role in digestion and overall health.

Identifying the Causes of Weight Loss and Poor Wool Quality:

The farm has been noticing weight loss and poor wool quality among some sheep. What potential factors could contribute to these issues, considering both dietary deficiencies and health problems?

What specific nutritional deficiencies or imbalances could be affecting the protein and energy intake, which are essential for wool growth and weight maintenance?

Example:

Protein deficiency is a common cause of poor wool quality and weight loss. Wool is primarily made up of protein (keratin), so insufficient protein intake can lead to weak, poor-quality wool. Additionally, if the sheep aren't receiving enough energy (calories), they may not have sufficient resources to maintain weight or grow wool properly. Mineral deficiencies, such as low levels of copper or zinc, could also contribute to poor wool growth and coat quality.

Lamb Mortality and Growth Issues:

There have been cases of lamb mortality, and the surviving lambs are growing slower than expected. What could be the potential causes of lamb mortality, particularly in terms of nutritional management or diseases?

How does colostrum intake and early lamb nutrition impact lamb survival rates and growth? What changes would you recommend to improve lamb health post-birth?

Example:

Lamb mortality could be linked to insufficient colostrum intake, which is essential for providing the lambs with antibodies and energy in the first few hours after birth. Lambs that do not receive enough colostrum are more susceptible to infections and may fail to thrive. Additionally, poor nutrition in the ewe, especially during the late gestation and lactation periods, can result in inadequate milk production, leading to poor lamb growth. Ensuring that ewes are properly fed during pregnancy and lactation, and supplementing lambs with high-quality colostrum (or a colostrum replacer if necessary), would help improve survival and growth rates.

Reproductive Issues and Fertility Concerns:

The farm has noticed a decrease in fertility and lambing rates. Possible contributing factors include poor nutrition, stress, and infectious diseases.

How does nutrition affect ewe fertility, especially during the flushing period (before breeding)? What role does energy intake play in reproductive success in sheep, and how can stress or environmental factors interfere with fertility?

Example:

Ewe fertility is significantly influenced by nutrition, especially in the pre-breeding period (flushing). Adequate energy intake in the

pre-mating period helps improve ovulation rates and increase lambing success. Low energy levels or poor protein intake can lead to reproductive failure or early embryonic death. Stress from housing changes or other environmental factors (such as poor weather, overcrowding, or insufficient space) can also reduce fertility rates by disrupting hormonal balance. To improve fertility, I would recommend ensuring that ewes are fed a high-energy diet during the flushing period and reducing stress through better housing and management practices.

Disease Prevention and Health Management:

Given the ongoing health challenges, what specific diseases or conditions might be affecting the sheep on this farm, such as internal parasites, mastitis, or lamb scours?

How would you approach diagnosing and treating these issues?

What steps should be taken to improve the overall health and productivity of the flock?

Example:

Internal parasites (e.g., roundworms, liver fluke) are a common issue in sheep, particularly if pasture management isn't optimal. These parasites can cause weight loss, poor growth, and reduced wool quality. Fecal egg count tests would help identify parasite loads. Treatment with an appropriate anthelmintic (dewormer) would be necessary, along with implementing a rotational grazing system to reduce pasture contamination. Additionally, mastitis in ewes can cause reduced milk production and poor lamb growth, and should be treated with antibiotics if necessary. Regular monitoring and vaccination programs can also reduce the risk of infectious diseases.

Long-Term Management Plan for Sheep Health:

Based on the issues identified, what long-term health and management practices would you recommend to improve the overall productivity and welfare of the flock?

How can the farm implement a more balanced and sustainable feeding strategy that supports both the nutritional needs of the ewes and lambs and ensures healthy growth and wool production?

Example:

I would recommend a balanced, high-fiber diet for the sheep, with an appropriate mix of forage (hay, pasture) and grain, especially during late gestation and lactation periods. This ensures the ewes have sufficient energy and protein for lambing and milk production. Ensuring proper mineral supplementation (especially calcium and phosphorus) would also support the health of the ewe and lambs. For long-term productivity, rotational grazing can help manage pasture health and minimize parasite load. Regular health checks, vaccination programs, and fecal testing will help prevent disease outbreaks. Additionally, addressing environmental stressors, such as improving housing and space, will support both reproductive success and overall health.

Reflection Questions:

How do the nutritional needs of ewes differ during gestation, lactation, and flushing periods, and how should feeding practices change to accommodate these needs?

What are the long-term consequences of poor wool quality and weight loss in sheep, and how can you ensure that these issues are prevented early on?

How can the management of lambing and weaning be improved to reduce lamb mortality and ensure faster growth?

A CHICKEN

A chicken is a bird that is raised for its meat and eggs. Chickens live throughout the world.

Chickens – like other birds – have feathers and wings. The feathers help them to keep warm in cold weather. Wings enable chickens to fly. However, they can fly only a few meters at a time. But chickens also have a number of special growths on their bodies that most other birds do not have. These growths include the red comb on top of the head and the red wattles that hang beneath the beak. Chicken meat and eggs are a good source of protein. Protein is a chemical compound that is necessary for a healthy diet. Chicken meat is also low in fat. However, chicken eggs contain a large amount of cholesterol. Many physicians

believe that cholesterol in a person`s diet may contribute to heart disease.

Raising chickens for meat and eggs is a major industry in many countries. Some people raise chickens as a hobby. They breed them for body size and color patterns. The birds are exhibited at fairs and livestock shows. People sometimes use feathers from the chicken`s neck and back to make flies (special hooks) for fishing. In addition, scientists may use chickens for research in medicine and other fields. Chicken eggs are used to make many vaccines, which protect human beings and animals from diseases.



Chickens are grouped according to class, breed and variety. Most classes are named for the area where the chickens were first developed.

Notes

to keep warm – грітися
special growths – окремі нарости
is low in fat – має мало жиру
in other fields – в інших галузях
according to – відповідно до
are named for – називаються за

TASK 1. Answer the questions:

1. What is a chicken raised for?
2. What do feathers do for chickens?
3. Which compound does chicken meat contain?
4. What may cholesterol contribute to?
5. Say a few words about chicken breeding.
6. According to what aspects are chickens grouped?
7. What are classes of chicken named for?

TASK 2. True or False?

1. A chicken is raised for its skin. F / T
2. Wings enable chickens to fly. F / T
3. Chicken meat and eggs have no protein at all. F / T
4. Chicken eggs are used to make perfume and cosmetics. F / T

TASK 3. Fill in the missing words:

1. Chickens have _____ and wings.
2. They can fly only a few meters _____ .

3. _____ is a chemical compound that is necessary for a healthy _____.
4. Cholesterol may _____ to heart _____.
5. Scientists may use chickens for _____ in medicine and other fields.
6. Chicken eggs are used to make many _____, which protect human beings and animals from diseases.

TASK 4. Choose the right answer:

1. Chicken is raised for ...
 - a) skin
 - b) meat and eggs
 - c) fat
2. Special growths on chickens' bodies are ...
 - a) horns and fur
 - b) wattles and a comb
 - c) needles
3. People sometimes use feathers from the chicken's neck and back to make ...
 - a) furniture
 - b) pens
 - c) flies
4. Most classes are named for ...
 - a) the time when they were developed
 - b) the area where they were developed
 - c) the city where they were developed

TASK 5. Match the words on the left with the examples/definitions on the right:

a beak	a common farm bird that is kept for its meat and eggs
--------	---

a chicken	a red piece of flesh that grows on the top of a male chicken's head
a comb	a hard pointed mouth of a bird
a breed	a chemical substance found in your blood
cholesterol	a type of animals that is kept as a pet or on a farm

TASK 6. Put the words in the gaps:

wings, hobby, a chicken, protein, meat

- 1 ... is a bird that is raised for its meat and eggs.
- 2 ... enable chicken to fly.
3. Chicken ...is low in fat.
4. ... is a chemical compound that is necessary for a healthy diet.
5. Some people raise chickens as a

TASK 7. Write sentences in the Past Simple:

1. Yesterday my mother ... (to prepare) chicken for dinner.
2. I ... (not / to want) to eat it.
3. But mother ... (to say) that chicken meat and eggs (to be) a good source of protein.
4. After some complaining I eventually ... (to eat) more than I usually do.

TASK 8. The Present Simple Tense:

1. A chicken ... (to be) a bird that is raised for its meat and eggs.
2. Chiken eggs... (to contain) a large amount of cholesterol.
3. Some people ... (to raise) chickens as a hobby.
4. Chicken meat and eggs ... (to be) a good source of protein.
5. Feathers ... (to help) them to keep warm in cold weather.

TASK 9. Listen to the new facts about chickens and comment on them:

AMAZING FACTS ABOUT A CHICKEN

1. The highest number of eggs produced by one hen in a year is 371.
2. Bred for meat, a pullet becomes a hen at one year old, kept for eggs it is a hen at 16-20 weeks.
3. Mexico has the highest egg consumption of any country at 420 eggs per year.
5. The Hen and Chicken Islands lie to the east of Auckland off the coast of northern New Zealand. They were named by James Cook after the star cluster the Pleiades which was also known as the Hen and Chickens.
6. The world's oldest known chicken was a hen that died of heart failure at the age of 16.

TASK 10. Cooperative Learning Exercise: "The World of Chickens"

Objective:

Students will work in teams to research, discuss, and present information about chickens, exploring their biology, role in agriculture, care needs, and cultural significance. The exercise fosters teamwork, communication, and research skills.

Group Formation:

Divide the class into 4 groups of 4 students each.

Each group will be assigned a different aspect of chickens to explore.

Roles within each group:

Researcher: Gathers information from sources (books, websites, videos, etc.) and shares it with the group.

Writer: Takes notes and organizes key information into a structured format.

Presenter: Prepares and delivers a short presentation based on the group's findings.

Timekeeper: Keeps track of time to ensure the group stays on schedule.

Topics for Each Group:

The Biology of Chickens

Physical characteristics (e.g., feathers, comb, beak, and feet)

Types of chickens (e.g., layers, broilers, and heritage breeds)

Life cycle of a chicken (from egg to adult)

Chickens in Agriculture

The role of chickens in farming and the poultry industry

Products from chickens (eggs, meat, feathers, etc.)

Economic and environmental impact of chicken farming

Caring for Chickens

Best practices for feeding, sheltering, and grooming chickens

Common health concerns and how to address them

The importance of humane treatment and ethical farming practices

Chickens in History and Culture

The domestication of chickens and their spread across the world

The significance of chickens in different cultures (e.g., in myths, festivals, and food)

Chicken symbolism in art, religion, and folklore

Steps:

Step 1: Research (20 minutes)

Groups will spend time gathering information on their assigned topic. Each member should research and share their findings with the group to ensure a variety of sources are consulted.

Step 2: Organize and Summarize (15 minutes)

The group will organize the information gathered into a clear and easy-to-understand format. The writer will help compile and summarize the key points for the presentation.

Step 3: Discussion (10 minutes)

The group will discuss their findings and clarify any confusing points. They should also practice explaining their topic to each other to ensure everyone understands the material.

Step 4: Prepare the Presentation (15 minutes)

The group will create visual aids to support their presentation (e.g., posters, slides, or diagrams). The presenter will rehearse delivering the information, making sure it is clear and engaging.

Step 5: Presentations (5 minutes per group)

Each group will present their findings to the class. After each presentation, classmates can ask questions, and the presenting group can answer and discuss their findings further.

Reflection & Evaluation:

After all groups have presented, lead a class discussion about the most interesting things learned from each presentation.

Self-Evaluation: Students will complete a brief self-evaluation form to reflect on their contributions to the group project and the effectiveness of their teamwork.

Peer Evaluation: Students will evaluate their teammates based on collaboration, communication, and individual contributions to the group's success.

Additional task.

1.Chicken Farming Simulation: Create a hands-on activity where students design and "manage" a virtual farm. They can make decisions about chicken care, egg production, and other aspects of chicken farming.

2.Art Project: Students can create artwork based on chickens in various cultures or from their research, showcasing chickens in historical or contemporary contexts.

Case Study Exercise: Managing the Health and Productivity of Chickens.

Scenario: You are a veterinary consultant for a medium-sized poultry farm that raises chickens for both egg production and meat. The farm has approximately 2,000 laying hens and 1,000 broiler chickens. Recently, the farm has been experiencing a variety of issues including reduced egg production, poor growth rates in broilers, and signs of feather loss in the laying hens. Additionally, there have been sporadic cases of diarrhea and respiratory distress in both the laying hens and broilers.

The farm manager is concerned that these health issues may be related to nutrition, disease, or environmental factors, and has requested your expertise to assess the situation and recommend corrective measures.

The chickens are housed in conventional poultry barns with controlled ventilation and lighting, but the farm has recently increased the density of chickens in the barns in an attempt to increase productivity. The feed is a standard commercial feed, but the farm manager is uncertain if it meets all the nutritional needs of the birds.

Your Task:

Assessing the Diet and Nutrition:

The chickens are fed a commercial feed, but the farm manager is unsure if it meets all the nutritional needs of the flock. The laying hens have been experiencing reduced egg production, and the broilers are growing more slowly than expected. What nutritional factors could be contributing to these issues, particularly regarding protein, calcium, and energy intake?

How does calcium impact egg production, and what might be the effect of protein deficiency on broiler growth?

Example:

A calcium deficiency in laying hens can lead to soft-shelled or thin eggs and reduced egg production. Calcium is essential for strong eggshell formation. Inadequate protein intake can slow down growth rates in broilers as protein is necessary for muscle development. Energy balance is also crucial for both laying hens and broilers; insufficient energy intake could result in reduced egg production and slower growth. I would recommend ensuring that the laying hens' feed contains an adequate level of calcium (usually 3.5-4.5% in layer feed) and the broilers' feed is high in protein and energy to promote optimal growth.

Feather Loss and Skin Conditions:

The laying hens are showing signs of feather loss, which can be associated with nutritional deficiencies, environmental stress, or parasites.

What could be the underlying causes of feather loss in the hens, and how would you investigate whether the problem is related to dietary factors, moulting, or external parasites (e.g., lice, mites)? What steps can be taken to improve the health of the hens' feathers and prevent further feather loss?

Example:

Feather loss can occur during moulting, which is a natural process in hens, but excessive feather loss could also be a sign of protein deficiency, especially if the birds are not getting enough essential amino acids like methionine. External parasites such as lice or mites can also cause irritation and feather loss. To diagnose the cause, I would conduct a thorough examination of the hens' environment, inspect the birds for signs of parasites, and review their diet to ensure it is balanced in protein and other essential nutrients. I would recommend parasitic treatment and possibly supplementing the hens' diet with extra protein and essential amino acids.

Respiratory Issues and Diarrhea:

Some chickens have been showing signs of respiratory distress (e.g., coughing, wheezing) and diarrhea, which could be indicative of underlying infectious diseases or environmental stress.

What are some possible diseases that could be causing these symptoms in the flock, such as avian influenza, Newcastle disease, infectious bronchitis, or coccidiosis?

How would you approach diagnosing these conditions, and what diagnostic tests would you recommend (e.g., PCR tests, blood tests, fecal analysis)?

How should the farm manage these health issues to prevent them from spreading to the rest of the flock?

Example:

Respiratory distress could be caused by infectious bronchitis or avian influenza, both of which are viral diseases that affect the respiratory system. Coccidiosis can cause diarrhea and is commonly seen in young chickens, particularly broilers. To

diagnose the issue, I would recommend conducting a PCR test for avian influenza and blood tests for other viral diseases. A fecal analysis would help diagnose coccidiosis. If a specific disease is diagnosed, appropriate vaccination or antibiotic treatments should be used, along with implementing biosecurity measures to prevent further infection.

Housing and Environmental Stress:

The farm manager has increased the density of chickens in the barns, which may have caused higher levels of stress and contributed to the health issues observed. What are the potential effects of high stocking density on the health and productivity of chickens?

How can the farm reduce stress and improve the welfare of the chickens, particularly by improving ventilation, lighting, and space within the barns?

Example:

High stocking density can lead to stress, pecking, and aggression among the chickens, which can affect their health, growth, and egg production. Overcrowding also increases the risk of disease transmission. To improve conditions, I would recommend ensuring that there is adequate ventilation to prevent the buildup of ammonia and humidity, as well as maintaining optimal lighting to support natural behaviors. Increasing space per bird (e.g., reducing stocking density) would also help reduce stress and improve overall productivity.

Long-Term Health and Productivity Plan:

Based on the issues identified in this case, what long-term management practices would you recommend to improve the overall health and productivity of the flock?

How can the farm implement a more balanced and sustainable feeding strategy that supports both the laying hens' egg production and the broilers' growth?

What role do regular health monitoring, biosecurity measures, and vaccination programs play in ensuring the long-term success of the farm?

Example:

I would recommend implementing a comprehensive feeding strategy that includes a balanced diet with appropriate levels of protein, calcium, and energy for both laying hens and broilers. Regular health monitoring through veterinary check-ups, fecal analysis, and blood tests would help identify early signs of disease and nutritional deficiencies. The farm should establish strict biosecurity measures to prevent the introduction and spread of infectious diseases. A vaccination program targeting common poultry diseases, such as Newcastle disease and avian influenza, would help reduce the risk of outbreaks. Additionally, adjusting stocking density and providing better environmental management would improve the overall welfare of the chickens.

Reflection Questions:

How does protein and calcium intake influence both egg production and broiler growth, and how can imbalances in these nutrients be corrected in poultry diets?

What are the main risks associated with overcrowding in poultry barns, and how can managing space and reducing stress improve the health and productivity of chickens?

How do environmental factors (like ventilation and lighting) affect the welfare and performance of chickens, and what improvements can be made to optimize their living conditions?

PETS: A CAT

The **domestic cat** is a small, usually furry, domesticated, and carnivorous mammal. It is often called the **housecat** when kept as an indoor pet, or simply the **cat** when there is no need to distinguish it from other felids and felines. Cats are often valued by humans for companionship and their ability to hunt vermin and household pests.



Since cats were cult animals in ancient Egypt, they were commonly believed to have been domesticated there, but there may have been instances of domestication as early as the Neolithic from around 9500 years ago (7500 BC).

A genetic study in 2007 concluded that domestic cats are descended from African wildcats 8000 BC, in West Asia. Cats are the most popular pets in the world, and are now found in almost every place where humans live.

Cats are similar in anatomy to the other felids, with strong, flexible bodies, quick reflexes, sharp retractable claws, and teeth adapted to killing small prey. Cats can hear sounds too faint or too high in frequency for human ears, such as those made by mice and other small animals. They can see in near darkness. Like most other mammals, cats have poorer color vision and a better sense of smell than humans.

Despite being solitary hunters, cats are a social species, and cat communication includes the use of a variety of

vocalizations (mewing, purring, trilling, hissing, growling and grunting) as well as cat pheromones, and types of cat-specific body language.

Cats have a rapid breeding rate. Under controlled breeding, they can be bred and shown as registered pedigree pets, a hobby known as cat fancy. Failure to control the breeding of pet cats by neutering, and the abandonment of former household pets, has resulted in large numbers of feral cats worldwide, requiring population control.

TASK 1. Answer the questions:

1. Is a cat a carnivorous animal?
2. What is the difference between **a cat** and **a housecat**?
3. What are cats valued for?
4. What are the physical characteristics of a cat?
5. Do cats hear and smell well?
6. Do cats have a keen sight?
7. Are cats good communicators?
8. Should cats' breeding be controlled?
9. In what countries were cats cult animals?
10. When were first cats domesticated?

TASK 2. True or False:

1. Domestic cats are descended from American wildcats. T/F
2. A hobby of cat breeding is called a cat fancy. T/F
3. Cats have no specific forms of communication. T/F
4. Cats' hearing is faint. T/F
5. Cats distinguish colours very well. T/F
6. Cats cannot see in the darkness. T/F
7. Cats distinguish colours very well. T/F

TASK 3. Complete the sentences:

1. A housecat is an / a pet.
2. Cats can hunt household
3. Cats can see in the
4. Cats have colour vision and a sense of smell than humans.
5. A cat's communication includes a variety of
6. Cats have a breeding rate.
7. Cats were animals in ancient Egypt.

TASK 4. Write degrees of comparison:

- small –
- furry –
- strong –
- flexible –
- sharp –
- quick –
- faint –
- poor –
- rapid –
- large –

TASK 5. Write a project on one of the cats' breed.

TASK 6. Listen to the new facts about cats and comment on them:

AMAZING FACTS ABOUT CATS

- Cats are one of the most popular pets in the world.
- There are over 500 million domestic cats in the world.
- Cats and humans have been associated for nearly 10 000 years.

- Cats conserve energy by sleeping for an average of 13 to 14 hours a day.
- Cats have flexible bodies and teeth adapted for hunting small animals such as mice and rats.
- A group of cats is called a clowder, a male cat is called a tom, a female cat is called a molly or queen while young cats are called kittens.
- Cats can be lethal hunters and very sneaky, when they walk their back paws step almost exactly in the same place as the front paws did beforehand, this keeps noise to a minimum and limits visible tracks.
- Cats have powerful night vision, allowing them to see at light levels six times lower than what a human needs in order to see.
- Cats also have excellent hearing and a powerful sense of smell.
- Older cats can at times act aggressively towards kittens.
- Domestic cats love to play, this is especially true with kittens who love to chase toys and play fight. Play fighting among kittens may be a way for them to practice and learn skills for hunting and fighting.
- On average cats live for around 12 to 15 years.
- Cats spend a large amount of time licking their coats to keep them clean.
- Feral cats are often seen as pests and threats to native animals.

TASK 7. Cooperative Learning Exercise: "Exploring the World of Cats"

Objective:

Students will work in teams to explore various aspects of cats, including their biology, behavior, role in society, and historical significance. Through research and collaboration, students will

strengthen their teamwork, communication, and presentation skills.

Group Formation:

Divide the class into 4 groups of 4 students each.

Each group will focus on a different aspect of cats to research and present.

Roles within each group:

Researcher: Gathers relevant information from books, websites, and videos and shares it with the group.

Writer: Organizes the information into a clear, easy-to-follow format and writes the group's findings.

Presenter: Prepares and delivers a presentation based on the group's research.

Timekeeper: Ensures that the group stays on track and that all tasks are completed within the allotted time.

Topics for Each Group:

The Biology of Cats

Physical characteristics (e.g., fur types, whiskers, claws, eyes)

Cat breeds and their differences

Life cycle of a cat (from kitten to adult cat)

Cat Behavior and Communication

How cats communicate (meowing, purring, body language, etc.)

Common behaviors (e.g., scratching, grooming, hunting instincts)

Understanding feline personalities and how they vary

Cats as Pets

The benefits of having a cat as a pet

How to care for a cat (feeding, grooming, health care)

How cats interact with humans and their role in the family or community

Cats in Culture and History

The history of cats (from wild cats to domestication)

The role of cats in different cultures (e.g., ancient Egypt, Japanese folklore)

Cats in literature, art, and mythology (e.g., in novels, paintings, and superstitions)

Steps:

Step 1: Research (20 minutes)

Groups spend time researching their assigned topic. Each group member should contribute to gathering information from different sources to ensure a well-rounded understanding.

Step 2: Organize and Summarize (15 minutes)

Once the research is complete, the group will organize their findings into key points that are easy to present. The writer will help synthesize the information into a clear summary.

Step 3: Group Discussion (10 minutes)

The group will discuss the findings, clarify any doubts, and ensure everyone has a good understanding of the material. They will also practice explaining the content to each other.

Step 4: Prepare the Presentation (15 minutes)

The group will work together to create a visual aid (such as a poster, PowerPoint, or handouts) to accompany their presentation. The presenter will practice delivering the material clearly and confidently.

Step 5: Presentations (5 minutes per group)

Each group will present their findings to the class. The audience will have a chance to ask questions and engage in discussion after each presentation.

Reflection & Evaluation:

After all presentations, hold a class-wide discussion to reflect on what was learned. Ask students which facts or insights about cats were the most surprising or interesting.

Self-Evaluation: Each student will fill out a brief self-evaluation form, reflecting on their contributions to the group and the group's overall performance.

Peer Evaluation: Students will evaluate their teammates based on how well they collaborated, communicated, and contributed to the group's success.

Additional Task.

Cat Care Simulation: Set up a "cat care" scenario where students must work in groups to develop a care plan for an adopted kitten. This could include feeding schedules, playtime, health checks, and other responsibilities.

Creative Project: Have students create artwork or short stories based on the role of cats in mythology or as companions to humans. They could showcase their creative work as part of the presentation.

Case Study Exercise: Managing the Health and Welfare of Cats.

Scenario: You are a veterinary consultant for a small animal clinic in a suburban neighborhood. The clinic has recently seen an increase in the number of cats being brought in with health concerns. A local pet owner, Mrs. Thompson, has brought her 5-year-old domestic cat, Fluffy, for a routine check-up. During the visit, Mrs. Thompson expresses concerns about Fluffy's sudden

weight loss, lack of appetite, and lethargy over the past few weeks. Fluffy has also been showing signs of increased thirst and frequent urination.

Additionally, Mrs. Thompson has noticed that Fluffy has been grooming excessively and seems to be struggling with some hair loss around the tail area. She has a few other cats in the household, but they are not showing any of the same symptoms.

Mrs. Thompson's primary concern is that something serious is wrong with Fluffy. She is eager to find a diagnosis and treatment plan to ensure her cat's health is restored.

Your Task:

Assessing the Symptoms:

Fluffy has shown signs of weight loss, lack of appetite, increased thirst, and frequent urination, along with hair loss and excessive grooming. What potential health conditions could explain these symptoms in cats?

How might the combination of these symptoms point to a specific disease or condition, such as diabetes, hyperthyroidism, or a skin condition like mange or flea allergy dermatitis?

Example:

The symptoms of increased thirst (polydipsia) and frequent urination (polyuria), along with weight loss, are classic signs of diabetes mellitus in cats. Hyperthyroidism could also be a possibility as it can lead to similar symptoms (weight loss, increased appetite, and hyperactivity). The hair loss and excessive grooming around the tail may point to a skin issue, like mange, flea infestations, or allergic dermatitis. The combination of metabolic symptoms and skin problems could indicate the

presence of multiple underlying conditions, so thorough testing will be necessary.

Differentiating Between Conditions:

How would you differentiate between diabetes mellitus and hyperthyroidism in cats based on Fluffy's symptoms? What diagnostic tests would you recommend for each condition, and what results would you expect from those tests?

Example:

Diabetes mellitus in cats typically presents with increased thirst, frequent urination, weight loss, and sometimes increased appetite. A blood glucose test and urine test showing high glucose levels and no glucose in urine would confirm diabetes. On the other hand, hyperthyroidism often leads to weight loss, increased appetite, hyperactivity, and sometimes vomiting. A blood test measuring thyroid hormone levels (T4) would help diagnose hyperthyroidism. Diabetes would show elevated blood sugar, while hyperthyroidism would show elevated T4 levels.

Investigating the Skin and Hair Loss:

Fluffy has been grooming excessively and experiencing hair loss around the tail area. What could be causing these issues? How can you investigate if it is due to flea infestations, mange, or a fungal infection like ringworm?

Example:

Flea infestations or allergic dermatitis could lead to excessive grooming and hair loss, particularly around the tail area. Mange, caused by demodex mites or sarcoptic mites, can also cause similar symptoms. To confirm these conditions, I would recommend performing a skin scraping to check for mites and conducting a flea comb examination to detect fleas or flea dirt. A

fungal culture could help rule out ringworm. Treatment for flea infestations includes topical flea treatments, while mange may require miticides.

Developing a Treatment Plan for Diabetes:

After reviewing the symptoms and diagnostic tests, you determine that Fluffy is indeed suffering from diabetes mellitus. What is the standard treatment protocol for managing diabetes in cats? What dietary changes, medications (e.g., insulin), and monitoring would be necessary?

Example:

For diabetes mellitus, the primary treatment involves insulin therapy, with regular injections of insulin to help regulate blood sugar levels. Diet is also important—cats with diabetes require a high-protein, low-carbohydrate diet to stabilize their blood glucose. Monitoring is crucial, including regular blood glucose checks, adjusting insulin dosages, and weight management. Fluffy’s owner should be trained in giving insulin injections and monitoring her cat’s response to treatment. Regular vet visits are necessary to ensure that the insulin therapy is working effectively.

Addressing the Skin and Hair Loss:

If the excessive grooming and hair loss are due to a flea infestation, how would you recommend managing this issue, considering Fluffy’s diabetes? What treatments would be safe and effective for her condition?

Example:

For a flea infestation, I would recommend using a flea treatment that is safe for diabetic cats. Many flea treatments, such as spot-on treatments, are safe for diabetic cats, but oral flea medications

that may contain ivermectin should be avoided as they can have adverse effects on diabetic cats. A fleas-on-the-neck treatment or oral flea medication such as Comfortis would be appropriate. Additionally, environmental control (e.g., treating the home for fleas) is crucial. The owner should ensure that all other cats in the household are treated for fleas as well.

Preventing Recurrence and Long-Term Management:

How can Fluffy's owner manage her diabetes long-term to ensure that she remains healthy and comfortable? What are the key aspects of diabetes management that must be followed on a day-to-day basis, and how should the owner monitor for complications?

Example:

Long-term management of diabetes involves insulin administration, a consistent diet, and monitoring of blood glucose levels. The owner should keep a consistent feeding schedule and give insulin injections at the same time each day. Monitoring blood glucose levels at home with a glucometer will help prevent episodes of hypoglycemia or hyperglycemia. Regular veterinary visits are necessary to adjust insulin dosages and check for any diabetes-related complications, such as diabetic neuropathy or kidney disease. The owner should also watch for signs of poor control, such as lethargy, vomiting, or changes in drinking and urination habits.

Reflection Questions:

What are the major challenges of managing diabetes mellitus in cats, and how can pet owners be supported in administering insulin and monitoring their cat's condition?

How can the veterinarian differentiate between fleas, mange, and fungal infections in cats, and why is it important to correctly diagnose the underlying cause of hair loss?

What dietary recommendations would be important for a diabetic cat, and how do those dietary needs differ from those of a healthy cat?

A DOG

The domestic **dog** is a subspecies of the gray wolf. The term "a domestic dog" is generally used for both domesticated and feral varieties. The dog was the first tamed animal and has



been the most widely kept for working, hunting, and as a pet animal in human history. The word "dog" can also refer to the male of a canine species, as opposed to the word "bitch" which refers to the female of the species.

Recent studies date dogs' domestication to the period of 14,000 and 16,000 years ago, though it is assumed that there were instances of wolves' domestication as early as 34,000 years ago. Dogs' value to early human hunter-gatherers was enormous. Dogs still perform many roles for people, such as hunting, herding, pulling loads, protection, assisting the police and military, companionship, and, more recently, aiding handicapped individuals. This impact on human society has given them the nickname "man's best friend" in the Western world. In 2001, there were estimated to be 400 million dogs in the world.

Most breeds of dogs are at most a few hundred years old, having been artificially selected for particular morphologies and behaviors by people for specific functional roles. Through this

selective breeding, the dog has developed into hundreds of varied breeds, and shows more behavioral and morphological variation than any other land mammal.

TASK 1. Answer the questions:

1. What is the term "domestic dog" generally used for?
2. Was a dog a first-domesticated animal?
3. Has it been the most widely kept?
4. When were the first dogs domesticated?
5. Why did pre-historic people domesticate them?
6. How do people name dogs?
7. How many dogs are there in the world?
8. Are there a lot of breeds of dogs in the world?

TASK 2. List roles of dogs for people using the ending -ing:
- hunting...

TASK 3. Write a composition "Man's best friend".

TASK 4. Listen to the facts about dogs. What information was the most surprising for you?

INTERESTING FACTS ABOUT DOGS

- In total there is said to be around 400 million dogs in the world.
- The domestic dog has been one of the most popular working and companion animals throughout human history.
- Dogs perform many useful tasks for humans including hunting, farm work and security as well as assisting those with disabilities such as the blind.

- Although experts often disagree, there is scientific evidence which shows that the domestication of dogs could have occurred more than 15,000 years ago.
- There are hundreds of different breeds of dogs.
- The most popular breed of dogs in the world by registered ownership is the Labrador. With their gentle nature, obedience, intelligence and near limitless energy, Labradors make for excellent family pets and reliable workers. They often assist the police and are a common choice as guide dogs.
- Dogs have formed such a strong bond as pets, workers and companions to humans that they have earned the nickname "man's best friend".
- Humans help train various dog breeds to enter in competitions such as breed shows, agility and obedience contests, racing and sledge pulling.
- Dogs have superior hearing than humans, capable of hearing sounds at four times the distance.
- Dogs have a remarkable sense of smell, they are capable of differentiating odors in concentrations nearly 100 million times lower than humans can.
- The average life span for a dog is around 10 to 14 years.
- Those involved in dog breeding refer to males as 'dogs', females as 'bitches', dogs younger than a year old as 'puppies' and a group of offspring as a 'litter'.
- Domestic dogs are omnivorous, they feed on a variety of foods including grains, vegetables and meat.

TASK 5. Cooperative Learning Exercise: "The Wonderful World of Dogs"

Objective:

Students will work in teams to research, discuss, and present information about dogs, focusing on their biology, behavior,

roles in society, and historical significance. The goal is to foster collaboration, research skills, and effective communication.

Group Formation:

Divide the class into 4 groups of 4 students each.

Each group will focus on a different aspect of dogs.

Roles within each group:

Researcher: Collects relevant information from various sources (books, websites, videos) and shares it with the team.

Writer: Organizes and summarizes the group's findings into a coherent and clear format.

Presenter: Prepares and delivers the presentation based on the group's research.

Timekeeper: Ensures the group stays on track, managing time effectively during the task.

Topics for Each Group:

The Biology of Dogs

Physical characteristics of dogs (e.g., size, coat types, senses)

Dog breeds and their unique traits

The life cycle of a dog (from puppy to adult)

Dog Behavior and Communication

How dogs communicate with humans and other animals (e.g., barking, body language, tail wagging)

Common dog behaviors (e.g., barking, digging, fetching)

Understanding dog personalities and temperament (e.g., energetic, calm, protective)

Dogs as Companions and Working Animals

The role of dogs as pets and companions to humans

Different types of working dogs (e.g., service dogs, police dogs, therapy dogs)

The importance of dogs in various fields and societies (e.g., in medicine, law enforcement, herding)

Dogs in Culture and History

The history of dog domestication and their evolution from wolves

Dogs in different cultures and societies (e.g., in mythology, art, and literature)

Famous dogs throughout history (e.g., Hachiko, Balto) and their impact on society

Steps:

Step 1: Research (20 minutes)

Groups will spend time gathering information on their assigned topic. Each member should research and contribute their findings to ensure the group has a broad understanding of the subject.

Step 2: Organize and Summarize (15 minutes)

After gathering the information, the group will organize their findings into key points. The writer will help summarize and structure the content to make it clear and easy to understand.

Step 3: Group Discussion (10 minutes)

The group will discuss their findings and ensure that everyone understands the material. They will also practice explaining their topic to one another to ensure clarity in the presentation.

Step 4: Prepare the Presentation (15 minutes)

The group will create visual aids to accompany their presentation (e.g., a PowerPoint, poster, or handouts). The presenter will rehearse their delivery to make sure they can clearly explain the key points.

Step 5: Presentations (5 minutes per group)

Each group will present their findings to the class. The audience will have the opportunity to ask questions, and the group can respond and elaborate on their topic.

Reflection & Evaluation:

After the presentations, hold a class discussion to reflect on the key takeaways about dogs and share any new facts learned during the exercise.

Self-Evaluation: Each student will complete a self-evaluation form, reflecting on their contributions to the group, their teamwork, and the quality of the final presentation.

Peer Evaluation: Students will evaluate their peers based on their participation, collaboration, and effort in the project.

Additional Task.

Dog Care Simulation: Students could create a schedule and care plan for a new puppy, including feeding, exercise, and health care. This could be done through a role-playing activity where each group member takes on the role of a dog owner, trainer, or veterinarian.

Dog-Themed Creative Project: Have students create artwork, short stories, or poems featuring dogs. These can be shared with the class or compiled into a class anthology.

Case Study Exercise: Managing the Health and Welfare of Dogs.

Scenario: You are a veterinary consultant at a small animal clinic in a suburban area. The clinic has been receiving several cases of dogs with various health concerns. One particular case involves Max, a 4-year-old Golden Retriever. Max's owner, Mr. Johnson, is concerned about his dog's recurrent vomiting, lethargy, and diarrhea over the past week. Mr. Johnson has also noticed that

Max seems to be drinking more water than usual and urinating more frequently. Max is typically an energetic and healthy dog, but these symptoms have raised concerns for his well-being. Mr. Johnson has tried feeding Max a bland diet, but the symptoms persist.

Max's symptoms are not consistent with any immediate changes in his environment or diet, and Mr. Johnson has mentioned that Max's vaccination and deworming are up-to-date.

Your Task:

Assessing the Symptoms:

Max is experiencing vomiting, lethargy, diarrhea, increased thirst, and frequent urination. What potential health conditions could explain these symptoms in dogs? How might the combination of these symptoms point to a specific disease or condition, such as kidney disease, diabetes, or gastrointestinal issues like parvovirus or inflammatory bowel disease (IBD)?

Example:

The combination of increased thirst (polydipsia), increased urination (polyuria), and vomiting could be indicative of diabetes mellitus or kidney disease. Vomiting and diarrhea are common symptoms of gastrointestinal issues, such as parvovirus, IBD, or food intolerances. The combination of symptoms in Max suggests the possibility of a systemic disease affecting both his kidneys and gastrointestinal tract. A full diagnostic workup is needed to narrow down the cause.

Differentiating Between Conditions:

How would you differentiate between kidney disease and diabetes in Max based on his symptoms? What diagnostic tests

would you recommend for each condition, and what results would you expect from those tests?

Example:

Kidney disease (chronic kidney disease or acute kidney failure) in dogs often presents with increased thirst, increased urination, and vomiting. However, kidney disease is often associated with elevated blood urea nitrogen (BUN) and creatinine levels, and a urine test would show dilute urine despite increased drinking. On the other hand, diabetes mellitus typically presents with increased thirst, increased urination, vomiting, and weight loss. A blood glucose test showing elevated glucose levels and a urine test with glucose present would suggest diabetes. A urinalysis and blood panel would help differentiate between these two conditions.

Investigating Gastrointestinal Issues:

Max's symptoms also include vomiting and diarrhea, which could indicate a gastrointestinal issue. What gastrointestinal conditions could be causing these symptoms? How would you investigate whether the cause is related to infectious agents like parvovirus or canine distemper, or chronic conditions like IBD or food intolerance?

Example:

Infectious diseases such as parvovirus or canine distemper can cause vomiting, diarrhea, and lethargy, especially in puppies or unvaccinated dogs. A PCR test for parvovirus or a serology test for distemper could confirm these infections. Inflammatory bowel disease (IBD) is a chronic condition that can cause vomiting, diarrhea, and weight loss. Food intolerance or allergies can also result in gastrointestinal upset. Fecal analysis could rule

out parasites, and a biopsy of the gastrointestinal tract could help diagnose IBD or chronic conditions.

Developing a Treatment Plan for Kidney Disease or Diabetes:

After reviewing Max's symptoms and performing diagnostic tests, you determine that he has chronic kidney disease. What is the standard treatment protocol for managing kidney disease in dogs? What dietary changes, medications, and lifestyle modifications should Max's owner implement to improve his quality of life?

Example:

Chronic kidney disease (CKD) in dogs is typically managed through dietary changes (low-protein, low-phosphorus diets to reduce kidney workload), hydration therapy (subcutaneous fluids), and medications to manage symptoms like vomiting (antiemetics) and hypertension (antihypertensives). Phosphate binders may also be used to control phosphorus levels. Regular monitoring of bloodwork (BUN, creatinine) and urine specific gravity will help track progression. Max's owner should provide fresh water at all times and possibly use a feeding tube if he struggles to eat. Additionally, reducing stress and providing a calm, comfortable environment will help Max manage his condition.

Addressing the Gastrointestinal Issues:

If Max's vomiting and diarrhea are related to food intolerance or IBD, how would you treat and manage these gastrointestinal symptoms? What changes would you recommend for his diet, and how would you address potential causes such as intestinal infections or bacterial imbalances?

Example:

If Max has food intolerance or IBD, I would recommend a novel protein diet or a hydrolyzed protein diet to help reduce inflammation in the gut. A probiotic supplement could help restore the natural balance of gut bacteria. If infections or parasites are suspected, I would recommend a fecal test to rule out any parasites and, if necessary, a course of antibiotics or antifungal treatment. In some cases, immunosuppressive medications like prednisolone may be necessary to control inflammation associated with IBD. Regular monitoring of Max's response to dietary changes is important for long-term management.

Preventing Recurrence and Long-Term Management:

How can Max's owner manage his health long-term to prevent the recurrence of symptoms and ensure his overall well-being? What are the key aspects of long-term kidney disease or diabetes management, and how should Max be monitored over time?

Example:

Long-term management of kidney disease or diabetes involves dietary management, medication, and regular veterinary check-ups. For kidney disease, Max will need a special diet designed to support kidney function and reduce kidney strain. Regular bloodwork to check kidney function, as well as urine tests to monitor hydration status, will be essential. For diabetes, insulin therapy and consistent feeding schedules are crucial, along with blood glucose monitoring at home. Max's owner should be trained to recognize signs of hypoglycemia or hyperglycemia and adjust insulin accordingly. Long-term veterinary visits will help catch any early signs of complications, such as kidney failure or pancreatitis.

Reflection Questions:

How can kidney disease and diabetes be managed effectively in dogs, and what challenges might arise in treating these chronic conditions?

What diagnostic tools are essential for identifying gastrointestinal issues like parvovirus, IBD, or food intolerance in dogs?

How important is owner education in managing chronic conditions like kidney disease or diabetes in dogs, and what key aspects should be covered during the consultation?

PARROT

Parrots are birds of the order Psittaciformes. There are roughly 372 species in 86 genera and they are found in most tropical and subtropical regions. The greatest diversity of parrots is found in South America and Australasia.

Parrots are intelligent birds. They have relatively large brains, they can learn, and they can use simple tools. Because some species have the ability to make sounds like human voices and have plumages with bright colors, many species are raised as pets. This includes some endangered and protected species.



Parrots have a heavy, in relation to their size, and compact body with a large head and a short neck. Their beaks are short, strong and curved. The two parts of the beak are very

strong and used to break fruits and seeds. The tongue is large and strong.

They have strong legs, and clawed zygodactyl feet (with two toes facing forward and two toes facing back) that are very useful to climb up trees. Many parrots are vividly coloured, and some are multi-coloured. The plumage of cockatoos ranges from mostly white to mostly black, with a mobile crest of feathers on the tops of their heads. Most parrots exhibit little or no sexual dimorphism.

They form the most variably sized bird order in terms of length. The smallest of the parrots is the pigmy parrot (*Micropsitta pusio*) with an adult weight of 11.5 g and a length of 8.6 cm. With a length (from the top of its head to the tip of its long pointed tail) of about 95 cm, the Hyacinth Macaw (*Anodorhynchus hyacinthinus*) is longer than any other species of parrot, although half that length is tail.

Notes

A parrot – папуга

Diversity – різноманітність

Tools – інструменти

Human voices – людські голоси

Plumages – оперення

Endangered species – види під загрозою вимирання

Curved beaks – вигнуті дзьоби

Clawed feet – лапи з кігтями

TASK 1. Cooperative learning.

Title: "Parrot Discovery Adventure"

Objective:

Students will work in small groups to research, discuss, and present different aspects of parrots, learning about their

characteristics, habitats, behaviors, and significance in nature. They will collaborate to teach each other and create a final presentation.

Materials:

Internet access (or books and other resources)

Paper, markers, and poster boards

Projector (if available) for presentations

Parrot images (optional)

Group Setup:

Divide students into small groups (3-4 members per group).

Assign each group a different aspect of parrots to explore:

Group 1: Parrot Species and Characteristics (types of parrots, their physical features, and adaptations)

Group 2: Parrot Habitats (where parrots live, climate, and ecosystems)

Group 3: Parrot Behavior (how parrots communicate, socialize, and feed)

Group 4: Parrots in Culture (parrots as pets, in mythology, and in the media)

Instructions:

Research Phase (15-20 minutes):

Each group will research their assigned topic, using available resources (internet, library books, etc.). Encourage students to take notes and identify key facts that stand out.

Collaborative Discussion (10 minutes):

Within each group, students will share their findings with each other. They should discuss what they learned and come to a consensus on the most important points to include in their presentation.

Creative Presentation (15 minutes):

Each group will create a poster, a digital slideshow, or another visual presentation to display their findings. They should be creative, making the content both informative and engaging (e.g., including pictures of parrots, making a short skit or quiz, etc.).

Presentation Time (10-15 minutes per group):

Each group will present their research to the rest of the class. Students in the audience should be encouraged to ask questions and discuss what they learned from each group.

Reflection (5-10 minutes):

After all the presentations, have a short class-wide discussion. Ask students to reflect on what they learned from each group and how they collaborated to learn more about parrots. They can share what new facts surprised them or how their understanding of parrots expanded.

Assessment:

Students will be assessed on:

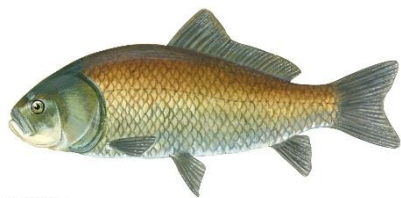
The quality and creativity of their presentation.

How well they work together as a group.

Their ability to explain their assigned topic clearly.

Their participation in the group discussions.

FISH



All fish have two main features in common. First, they are vertebrates (have a backbone) that live in water. Secondly, they breathe mainly by means of gills.

Fish differ so in shape, colour, and size that it is hard to believe they all belong to the same group of animals. For example, some fish look like rocks, and other like worms.

The smallest fish is the Trimmaton nanus, a goby, which is about 1 centimeter long. The largest fish is the whale shark, which may grow more than 12 meters long and weigh over 14 tons. It feeds on plankton and is completely harmless to most other fish and to human beings. The most dangerous fish weigh only a few pounds or kilograms.

Fish live almost anywhere there is water. They are found in the cold waters of the Arctic and in the warm waters of tropical jungles. They live in mountain streams and in underground rivers.

Fish have great importance to human beings. They provide food for millions of people. In addition, fish are important in the balance of nature. They eat plants and animals and, in turn, become food for plants and animals.

Kinds of fish. Scientists have named and described about 21,700 kinds of fish. Each year, they discover new fish species.

Scientists who study fish are called ichthyologists. They divide fish into two main groups: first, jawed and secondly, jawless. Almost all fish have jaws. The only jawless species are lampreys and hagfishes. Jawed fish are further divided into two groups according to the composition of their skeletons. One group has a skeleton composed of an elastic substance called cartilage. Sharks, rays, and chimaeras make up this group. The other group has a skeleton composed of bone. Members of this group, called bony fish, make up the largest group of fish in the world.

Bony fish. They can be divided into two main groups according to the composition of their skeletons. One group consists of modern bony fish, whose skeletons are composed largely of bone. The second group consists of primitive bony fish, whose skeletons are partly bone and partly cartilage.

Modern bony fish include about 20,860 species. They make up about 95 per cent of all known kinds of fish. Some have bony skeletons. They are called teleosts, which come from two Greek words meaning *complete* and *bone*. They include such well-known groups of fish as bass, catfish, cod, herring, minnows, perch, trout, and tuna.

TYPES OF FISH



GOBY FISH



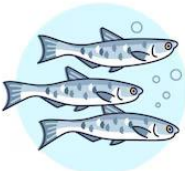
ANABAS



EAL



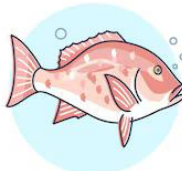
CATFISH



ANCHOVY



SKATE FISH



SNAPPER

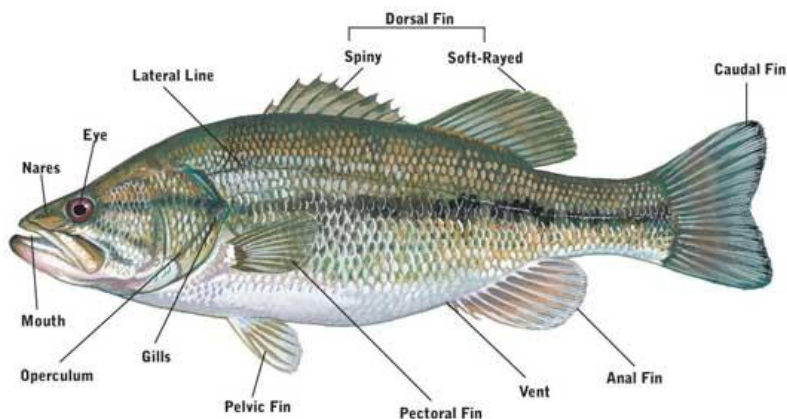


GROUPE

Today, the various species of teleosts differ from one another in many ways. For example, many teleosts have flexible, highly efficient fins and are excellent swimmers. Sailfish and tuna can swim long distances at high speed. Certain eel-like teleosts are finless and so are poor swimmers.

Primitive bony fish include about 15 species of bichirs, coelacanths, and lungfish. They are related to fish that lived many millions of years ago.

The body of fish. In some ways, the body of fish resembles that of other vertebrates. For example, fish, like other vertebrates, have an internal skeleton, an outer skin and such internal organs as a heart, intestines, and a brain. But in a number of ways, a fish's body differs from that of other vertebrates. For example, fish have fins instead of legs and gills instead of lungs.



Shape. Most fish have a streamlined body. The head is somewhat rounded at the front. Fish have no neck. The trunk, in turn, narrows into tail.

Skin and colour. Most fish have a fairly tough skin. It contains blood vessels, nerves, and connective tissue. It contains certain special cells. Some of these cells produce a mucus. This mucus makes fish slippery. Other special cells, called pigment cells, give fish many of their colours. Pigment cells contain red, yellow, or brownish-black pigments. These colours may combine and produce other colours, such as orange and green.

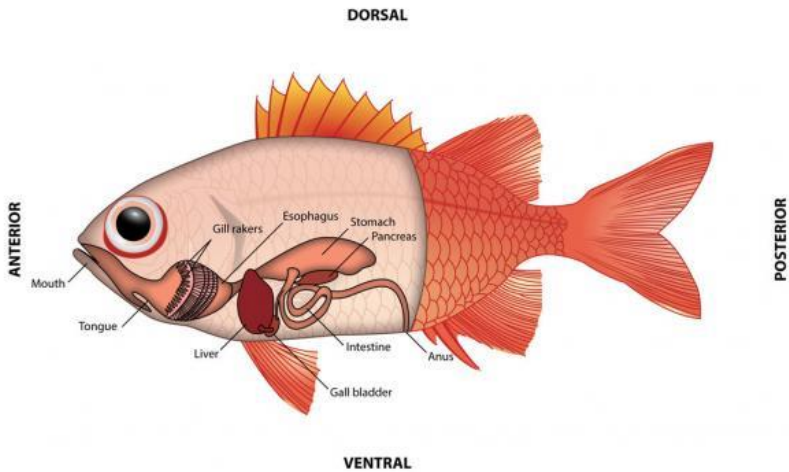
Scales. Most jawed fish have a protective covering of scales. Teleost fish have thin, bony scales that are rounded at the

edge. There are two main types of teleost scales – ctenoid and cycloid.

Fins are movable structures that help a fish swim and keep its balance. A fish moves its fins by means of muscles. Except for a few finless species, all modern bony fish have rayed fins.

Skeleton. A fish's skeleton provides a framework for the head, trunk, tail and fins. The central framework for the trunk and tail is the backbone. It consists of many vertebrae, to which the ribs are attached.

Systems of the body. The internal organs of fish are grouped into respiratory, digestive, circulatory, nervous and reproductive systems.



When fish become adults. Every fish begins life in an egg. In the egg, the undeveloped fish, called an embryo, feeds on the yolk until ready to hatch. The fish reaches adulthood when it begins to produce sperm and eggs. Most small fish become

adults within a few months after hatching. But some small fish become adults only a few minutes after hatching. Large fish require several years. The longest-lived fish are probably certain sturgeon, some of which have lived in aquariums more than 50 years.

How fish get food. Most fish are carnivores (meat-eaters). They eat shellfish, worms, and other kinds of water animals. Above all, they eat other fish. They sometimes eat their own young. They chiefly eat algae and other water plants. But most plant-eating fish probably also eat animals. Some fish feed mainly on plankton. They include many kinds of flying fish and herring and the three largest fish of all - the whale shark, giant manta ray, and basking shark. Some fish are scavengers. They feed mainly on waste products and on the dead bodies of animals that sink to the bottom.

Many fish have body organs specially adopted for capturing food. They are flashing lures, long jaws, sharp teeth, electricity-producing organs, etc.

How fish swim. Most fish move by swinging the tail fin from side to side and by curving the rest of the body to the left and to the right. Fish maneuver by moving their fins. To make a left turn, for example, a fish extends its left pectoral fin. To stop, a fish extends both of its pectoral fins. Most fast swimmers, such as swordfish and tuna, have a deeply forked tail fin and sickle-shaped pectorals.

Vocabulary. Learn new words.

until ready to hatch – поки не вилупиться з нього

above all – передусім

electricity-producing – що виробляють електрику

by swinging – маханням (хвостовим плавцем)

from side to side – з боку на бік

by curving – згинанням

to the left and to the right – наліво і направо
to make a left turn – щоб зробити лівий поворот
a forked tail fin – роздвоєний хвостовий плавець
in common – спільно
by means of gills – за допомогою зябер
differ in shape – відрізняються формою
weigh 14 metric tons – важать 14 тонн
it feeds on plankton – вона живиться планктоном
a few pounds – декілька фунтів
anywhere there is – всюди, де є
in some ways – певним чином
in a number of ways – у багатьох відношеннях
a streamlined body – тіло обтічної форми
narrows into tail – звужується до хвоста
keep its balance – втримувати рівновагу
except for a few – окрім декількох
according to the composition – відповідно до будови partly ...
partly – почасти,... почасти
differ in many ways – різняться у багатьох відношеннях
and so are poor swimmers – і тому є поганими плавцями
they are related to – вони споріднені з

TASK 1. Cooperative learning.

Title: "Fish Exploration Expedition"

Objective:

Students will work in small groups to explore different types of fish, their habitats, characteristics, and their role in ecosystems. The goal is for students to collaborate and teach each other about the diversity and importance of fish in the natural world.

Materials:

Internet access (or books and other resources)

Paper, markers, and poster boards

Projector (if available) for presentations

Pictures or models of different types of fish (optional)

Index cards for facts

Group Setup:

Divide students into small groups (3-4 members per group).

Assign each group a different aspect of fish to research:

Group 1: Fish Anatomy and Characteristics (body parts, fins, scales, etc.)

Group 2: Types of Fish (freshwater vs. saltwater, examples of species)

Group 3: Fish Habitats (oceans, rivers, lakes, and their unique ecosystems)

Group 4: Fish Adaptations and Behavior (how fish adapt to their environments, migration, feeding habits)

Instructions:

Research Phase (15-20 minutes):

Each group will research their assigned topic using available resources (internet, library books, etc.). They should focus on gathering key facts, examples, and images that will help explain their topic clearly.

Collaborative Discussion (10 minutes):

Within each group, students will share their findings. They should discuss and decide on the most important points to include in their presentation. Encourage them to brainstorm creative ways to present their information.

Creative Presentation (15 minutes):

Each group will create a visual presentation to showcase their findings. This could be a poster, a PowerPoint slideshow, or even a short skit or role play. Encourage students to use visuals like

pictures of different fish species, diagrams of fish anatomy, or maps showing fish habitats.

Presentation Time (10-15 minutes per group):

Each group will present their research to the class. They should be prepared to answer questions from their peers. Encourage other students to ask questions about the different topics (e.g., “What’s the biggest fish you found?” or “How do fish survive in freezing water?”).

Reflection (5-10 minutes):

After all presentations, conduct a short class-wide discussion where students can reflect on what they learned from each group. Ask them what was surprising, what they found most interesting, and what new facts they didn’t know about fish.

Assessment:

Students will be assessed on:

The clarity and accuracy of their presentation.

The creativity and effort they put into making their presentation engaging.

Their participation in group discussions.

Their ability to answer questions and explain their topic effectively.

Case Study Exercise: Managing the Health and Welfare of Fish.

Scenario: You are a veterinary consultant at an aquatic animal care center. Recently, the center has been receiving a significant number of fish with health concerns, particularly from a local aquarium owner, Mr. Lee. Mr. Lee has a 150-gallon freshwater aquarium with a variety of fish species, including Tetras, Guppies, Angelfish, and Corydoras Catfish. Over the past two

weeks, he has noticed that many of his fish are exhibiting unusual symptoms, such as scratching against objects, loss of color, clamped fins, and erratic swimming patterns. A few of his fish have also died suddenly.

Mr. Lee is concerned about the well-being of his fish and wants to identify the cause of these issues, prevent further deaths, and maintain the health of his aquarium.

Your Task:

Assessing the Symptoms:

The fish are showing symptoms of scratching against objects, loss of color, clamped fins, and erratic swimming. What potential health conditions could explain these symptoms in fish? How might these symptoms indicate an issue with external parasites, water quality, or bacterial/fungal infections?

Example:

The symptoms of scratching against objects and clamped fins often indicate an issue with external parasites such as *Ichthyophthirius multifiliis* (commonly known as Ich or White Spot Disease), which causes irritation and itchiness. The loss of color and erratic swimming could also point to stress caused by poor water quality or an oxygen deficiency. Bacterial or fungal infections could lead to lesions, body discoloration, or fin rot. A thorough examination of the water parameters (e.g., pH, ammonia, nitrite, and nitrate levels) is necessary to determine if water quality is a contributing factor.

Investigating Water Quality:

Given the symptoms of illness in the fish, how would you assess the water quality in Mr. Lee's aquarium? What specific water

parameters should you check, and what results would be indicative of a problem that could be affecting the fish?

Example:

Water quality is a critical factor in fish health, and a test kit should be used to measure the following parameters:

Ammonia (NH₃/NH₄): High ammonia levels are toxic and can cause irritation, loss of appetite, and stress.

Nitrites (NO₂): Elevated nitrite levels can interfere with oxygen transport in fish, leading to symptoms such as erratic swimming or lethargy.

Nitrates (NO₃): High nitrate levels can stress fish and contribute to a weakened immune system, making them more susceptible to disease.

pH: A dramatic change in pH can cause stress and irritate the gills of fish.

Oxygen levels: Low oxygen can cause fish to swim erratically or near the water surface. Any abnormal results, such as ammonia or nitrite spikes, would indicate poor filtration or overfeeding, requiring immediate attention.

Identifying Potential Parasitic Infections:

The symptom of scratching against objects and the appearance of white spots on the skin of some fish might indicate an external parasitic infection like Ich (White Spot Disease). How would you confirm this diagnosis, and what treatment options are available for Ich?

Example:

Ich is characterized by the appearance of small white cysts on the skin, gills, and fins of affected fish. To confirm the diagnosis, a close inspection of the fish is necessary, often with the help of

a magnifying glass. Infected fish may also exhibit rapid gill movement or clamped fins. Treatment for Ich includes raising the water temperature (to speed up the life cycle of the parasite), adding a medicated treatment such as malachite green or formalyn, and increasing aeration to prevent oxygen depletion. The infected fish should be isolated in a quarantine tank to prevent the spread of the parasite.

Assessing the Risk of Bacterial or Fungal Infections:

Some of the fish are showing signs of body lesions, fin rot, or skin discoloration, which could be indicative of bacterial or fungal infections. How would you differentiate between these two types of infections, and what treatments are available for each?

Example:

Bacterial infections in fish often cause open wounds, fin rot, or ulcers. The lesions may appear as red or inflamed areas on the skin, and the fish may appear lethargic or have difficulty swimming. Treatment for bacterial infections may include antibiotic baths or water treatments with medications like erythromycin or tetracycline.

Fungal infections, such as Saprolegnia, usually appear as cotton-like growths on the skin, gills, or fins. Fungal infections often follow physical injuries or stress. Treatment involves using antifungal agents, such as formalyn or potassium permanganate, and improving the water quality to reduce stress. The choice of treatment depends on the identification of the pathogen and the condition's severity.

Preventing Further Infections:

After treating the current issues in Mr. Lee's aquarium, how would you advise him to prevent further health problems with

his fish? What strategies should Mr. Lee adopt to maintain a stable and healthy environment for his aquarium?

Example:

Regular water testing should be conducted to ensure that ammonia, nitrites, and nitrates are kept within safe levels. I would also advise regular water changes (10-20% weekly) to reduce the buildup of waste products.

Proper filtration is essential to maintain water quality, and the filter should be cleaned regularly without disrupting the beneficial bacteria population.

Quarantining new fish before adding them to the main tank can help prevent the introduction of diseases.

Avoiding overfeeding can prevent excess nutrients from accumulating in the water, which can lead to poor water quality and encourage the growth of harmful pathogens.

Maintaining the correct temperature, salinity, and pH for the specific species of fish in the aquarium is crucial for their overall health.

Regular observation of the fish's behavior, and ensuring that they are not overcrowded in the tank, will also help identify problems early.

Long-Term Health Management:

What are some long-term health management strategies that Mr. Lee can implement to ensure the ongoing well-being of his aquarium's fish population? How can he create an optimal environment to support the health of a variety of fish species?

Example:

Species compatibility should be taken into consideration when stocking the tank. Mr. Lee should avoid housing species that are too aggressive or incompatible with each other.

Mr. Lee should also focus on maintaining stable water conditions by performing routine maintenance and keeping the tank's filtration system in good working order. Adding live plants can help with water filtration, and aquarium substrate should be cleaned regularly.

He should also have a regular health check for his fish, particularly if introducing new species to the aquarium. He can maintain a logbook to track water conditions, treatments, and fish health, which can be useful for identifying trends or recurring issues.

Reflection Questions:

How can external parasites like Ich impact the overall health of an aquarium, and what preventive measures can be taken to reduce the risk of such infections?

What role does water quality play in the health of aquarium fish, and what are the consequences of poor water quality on fish behavior and disease susceptibility?

How can fish owners create a balanced environment in their aquarium that supports the well-being of various fish species, and why is this important for long-term health management?

BEE



Bee produce honey, which people use as food; and wax, which is used in such products as candles, and cosmetics. There are about 20,000 species of bees. Only the kinds known as honey bees make honey and wax in large amounts to be used by people.

Flowers provide food for bees. The bees collect little grains of pollen

and a sweet liquid called nectar from the blossoms they visit. They make honey from the nectar, and use both honey and pollen as food. During their flights, bees spread pollen from one flower to another, thus pollinating the plants they visit. This enables the plants to reproduce.

Like most insects, bees have three pairs of legs and four wings. They also have a special stomach, called a honey stomach, in which they carry nectar. All female bees have a sting, which they use for self-defense.

A typical honey bee colony is made up of one queen, tens of thousands of workers, and a few hundred drones. The queen is the female honey bee that lays eggs. The workers are the unmated female offspring of the queen. The drones are the male.

The honey bee colony. As you know, a honey bee colony is made up of one queen, tens of thousands of workers, and a few hundred drones. Honey bees live in hives. The hive is a storage space, such as a hollow tree or a box, which contains a honeycomb. The honeycomb is a mass of six-sided compartments called cells. Worker bees build the honeycomb of wax produced by their bodies. They also collect a sticky substance called propolis, or bee glue, from certain kinds of trees. They use it to repair cracks in the hive.

The honeycomb is used to raise young bees and to store food. The queen bee lays one egg in each cell in part of the honeycomb. In general, the cells containing the eggs and developing bees are in the center of the hive. There the bees store pollen and honey. The same cells may be used for different purposes. During spring and summer, many cells are used to raise young bees. In autumn, brood production stops, and more cells are available for storing honey through the winter.

The content of the hive is a good food for many animals, including bees from other colonies. Several workers always guard the entrance to the hive. The bees in each hive have their own special odor. The guard bees can detect bees from other hives by their smell. The guard bees attack strangers, whether they are bees from outside the colony, bears, or human beings.



When the threat to the hive is great, such as a bear that jars the hive, the guard bees give off a special pheromone (chemical substance).

The scent of this pheromone, which smells like bananas, alerts other bees in the hive to come to the aid of the guards.

From egg to adult. Bees develop from eggs laid by the queen. During mating, the drone places semen inside the queen's body. The semen contains sperm (male sex cells). The queen stores the sperm in a sac in her abdomen. If the queen releases sperm onto an egg, the egg hatches into a worker. If she does not release sperm, it develops into a drone.

A bee starts to develop as soon as the queen lays the egg. After three days, a tiny larva crawls out of the egg and eats larval food, called royal jelly. After five days the larva becomes a pupa. In 21 days the pupa develops into an adult.

Growth of the queen. A colony needs a new queen if the old queen disappears or becomes feeble. A new queen is also

needed if the old queen and part of the colony decide to leave and build a new hive.

In some unknown way, the workers select a few larvae to become queens. They feed these larvae only royal jelly. Other workers build special cells for the queens to grow in.

Mating flight. The old queen may leave the colony, or she may fight with the young queen. After the young queen has killed her rival, she flies from the hive. She may mate with one or sometimes several drones. The young queen then returns to the hive and begins to lay eggs two or three days later. A queen may live five years and produce up to a million eggs during her lifetime.

Swarming. When a colony becomes overcrowded, many of the workers and the old queen leave the hive as a swarm. They form a new colony after the workers called the scouts have found a location for it. “Streaker” bees who know where the hive is lead the way. The queen follows.

Vocabulary. Learn new words.

eggs laid by the queen – відкладених маткою

as soon as – як тільки

to grow in – щоб їх вивести

in some unknown way – якимсь невідомим чином

becomes overcrowded – переповнена

known as honey bees – відомі як медоносні бджоли

to be used by people – щоб їх використовували люди

they visit – котрі вони відвідують

from one ... to another – від одної до іншої

thus pollinating – і таким чином запилюють

like most insects – подібно, як більшість комах

for self-defense – для самозахисту

six-sided compartments – шестигранні чарунки

in part – у частині

in general – у загальному
brood production – виведення розплоду
to come to the aid – щоб прийти на допомогу

TASK 1. Cooperative Learning Exercise: Understanding Bees

Objective:

Students will work collaboratively to explore the biology, behavior, and ecological significance of bees. They will learn about the different types of bees, their roles in pollination, and the challenges they face in today's environment.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper, whiteboard, or poster board

Markers

Bee anatomy diagrams (optional)

Pollination and ecosystem impact case studies (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Start by discussing the importance of bees in nature, particularly focusing on their role in pollination. Explain that bees pollinate approximately one-third of the food we eat and are vital for biodiversity.

Briefly introduce the types of bees, including honeybees, bumblebees, and solitary bees. Highlight their different roles in ecosystems.

Provide an overview of bee anatomy, including their specialized structures (e.g., proboscis for nectar collection, pollen baskets, wings) that help them pollinate flowers effectively.

Mention the threats to bee populations, such as pesticides, habitat loss, diseases, and climate change.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to bees:

Group 1: Anatomy of a Bee (Focus on the physical features of bees, including their body parts that aid in pollination, feeding, and reproduction)

Group 2: Types of Bees and Their Roles (Focus on the differences between honeybees, bumblebees, and solitary bees, and the unique roles each plays in pollination)

Group 3: The Process of Pollination (Focus on how bees pollinate flowers and the importance of pollination in ecosystems and agriculture)

Group 4: Bee Behavior and Social Structure (Focus on the social behavior of honeybees, including the roles of the queen, worker bees, and drones, and their communication through the "waggle dance")

Group 5: Threats to Bee Populations and Conservation Efforts (Focus on the challenges bees face today, such as pesticide use, habitat destruction, and climate change, and discuss conservation efforts and solutions)

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using available materials (books, articles, internet). They should aim to answer the following questions:

Anatomy of a Bee (Group 1): What are the key body parts of a bee that help it in the pollination process? How does the

proboscis function to collect nectar? What are pollen baskets and how do they work? How do bees' wings aid in flight and pollination?

Types of Bees and Their Roles (Group 2): What are the differences between honeybees, bumblebees, and solitary bees? How do each of these bee species contribute to pollination? What role does each bee type play in the environment and food production?

The Process of Pollination (Group 3): How do bees collect nectar and pollen from flowers? What happens during the process of pollination, and why is it important for plant reproduction? How does this process impact food crops?

Bee Behavior and Social Structure (Group 4): What are the roles of queen bees, worker bees, and drones in a bee colony? How do bees communicate with each other, particularly through the waggle dance? What is the purpose of hive behavior, and how does it support the colony?

Threats to Bee Populations and Conservation Efforts (Group 5): What are the main threats that bees face today? How do pesticides, habitat loss, and climate change affect bee populations? What conservation strategies are being implemented to protect bees and their habitats?

Group Collaboration (15 minutes):

After completing their research, each group will collaborate to create a visual summary (poster, infographic, or slide presentation) of their findings. The visual should include:

Key points and findings related to their assigned topic

Diagrams, charts, or images (e.g., bee anatomy, pollination process, types of bees) to support their findings

A brief explanation of how their topic connects to the overall role of bees in ecosystems and agriculture

Each group member should contribute to the creation and explanation of the visual.

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear, informative, and no more than 5 minutes long.

Presentations should include:

An overview of their assigned topic

Key findings, relevant statistics, and visuals to enhance understanding

Insights into how their topic connects to the ecological importance of bees

After each presentation, allow for a few minutes of questions or discussion from the class.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

How do different types of bees contribute to the ecosystem and agriculture?

Why is pollination so important, and how do bees support the reproduction of plants?

How do bees communicate and work together within a colony?

Why is their social structure essential for colony survival?

What are the major challenges facing bees today, and what actions can we take to protect them?

Encourage students to reflect on the broader implications of bee conservation and how they can contribute to efforts to protect bee populations.

Wrap-Up (5 minutes):

Conclude the activity by summarizing the key takeaways about bees:

Bees play a crucial role in pollination, which supports biodiversity, food crops, and ecosystems.

The physical and behavioral adaptations of bees, such as their specialized body parts and social structure, enable them to be efficient pollinators.

Bees face numerous threats, but conservation efforts, including habitat restoration and reducing pesticide use, can help protect bee populations.

By understanding the biology and importance of bees, we can all contribute to efforts that safeguard these essential creatures.

Assessment:

Group Work: Evaluate the depth and accuracy of each group's research and how well they collaborated to complete their task.

Presentations: Assess the clarity, organization, and engagement of the group presentations, as well as their use of visuals to enhance understanding.

Class Participation: Consider how actively students participate in the class discussion, asking questions or contributing to reflections.

Case Study Exercise: Managing the Health and Welfare of Bees.

Scenario: You are a beekeeper and consultant at a local agricultural extension office. Over the past several months, you've been noticing unusual behavior in the local bee colonies, particularly in Mr. Thompson's apiary. Mr. Thompson has 15 hives, and recently, he reported a significant decline in honey production. Additionally, he observed that many of his worker bees were dying off unexpectedly, and the colony seemed to have fewer bees than usual. The bees that remain in the hive appear weak, and he also noticed unusual patterns of foraging behavior, with some bees not returning to the hive at all. Some of

the hives also have wax moth infestations. He is concerned about the health of his bees and wants to know what could be causing these problems and how to address them.

Your Task:

Assessing the Symptoms:

Mr. Thompson's bees are exhibiting unexpected die-offs, weakness, decline in honey production, and strange foraging behavior. What potential factors could explain these symptoms in a bee colony? How might diseases, pests, or environmental factors be contributing to these issues?

Example:

The symptoms Mr. Thompson is observing could be due to a variety of factors. Pests such as Varroa mites or wax moths can cause significant damage to a colony, leading to a weakened hive. Varroa mites weaken the immune system of the bees, making them susceptible to other infections, and can cause abnormal behavior, such as disorientation or death. The decline in honey production could also suggest that the bees are not foraging effectively, which might be caused by environmental stressors or poor weather conditions affecting nectar flow. Another potential factor is colony collapse disorder (CCD), a phenomenon linked to pesticides, diseases, and nutritional deficiencies.

Identifying the Role of Pests:

Mr. Thompson also noticed a wax moth infestation in some of his hives. How does a wax moth infestation impact the health of a bee colony? What steps can be taken to manage and control this pest?

Example:

Wax moths are a common pest in beekeeping and can cause serious damage to hives. The larvae of wax moths feed on the wax combs, leaving behind a mess of webbing and frass. This can damage honey stores, brood cells, and wax combs, weakening the hive. Severe infestations can lead to colony collapse if not addressed. To manage wax moths, Mr. Thompson should:

Remove infested frames and treat them with heat or freezing to kill the larvae.

Ensure that the hives are clean and free of old combs and debris that attract moths.

Use beekeeping equipment like hive traps or essential oils like mint or cinnamon that are known to repel moths.

Implement better ventilation within the hives, as wax moths prefer damp, poorly ventilated environments.

Diagnosing Potential Disease Problems:

Considering the die-offs and weakened bees, how would you go about diagnosing whether the issue is related to diseases like American Foulbrood (AFB), European Foulbrood (EFB), or Nosema? What are the characteristic symptoms of each, and what diagnostic tests could be used?

Example:

American Foulbrood (AFB) and European Foulbrood (EFB) are both bacterial diseases that affect the brood, causing larvae to die within their cells. Symptoms of AFB include sunken, perforated, or melted-looking larvae, and a foul odor from the dead larvae. EFB causes larvae to become yellow or twisted, and it doesn't typically produce the strong odor associated with AFB. Both diseases can result in the weakening or death of colonies.

A smear test for AFB (checking for spores) can confirm the presence of the disease. Infected hives should be destroyed or treated with antibiotics like Oxytetracycline for EFB.

Nosema is a fungal infection that affects the digestive system of adult bees. Symptoms include diarrhea, stunted growth, and weak bees. Diagnosis can be made by taking a sample of the bee's gut and looking for fungal spores under a microscope. Treatment involves administering Fumagillin, a drug used to control Nosema infections.

If any of these diseases are diagnosed, strict quarantine procedures must be followed, and infected hives may need to be destroyed or treated accordingly.

Addressing Colony Collapse Disorder (CCD):

If you suspect that the symptoms in Mr. Thompson's apiary could be linked to Colony Collapse Disorder (CCD), what steps would you recommend to investigate and manage this disorder? What are the possible causes of CCD, and what measures can be taken to help prevent it?

Example:

Colony Collapse Disorder (CCD) is a phenomenon where worker bees abandon the hive, leaving behind a queen, brood, and honey stores. It's believed to be caused by a combination of pesticides, disease, nutritional deficiencies, and environmental stressors.

To investigate, Mr. Thompson should check the hives for the presence of pesticide residues by sending bees to a lab for testing.

Habitat loss and poor forage availability can also contribute to CCD. Mr. Thompson could consider planting more bee-friendly plants, providing pollen substitutes, and ensuring that his bees have access to diverse nectar sources.

He should also check for pesticide exposure, especially if the hives are located near agricultural fields that may be using harmful chemicals. It's important to implement integrated pest management (IPM) strategies to reduce pesticide use near the hives.

Improving Bee Nutrition and Foraging:

The issue of poor honey production and unusual foraging behavior could be a result of inadequate nutrition. What are some of the key factors that contribute to bee health and foraging success? How would you recommend improving the nutritional intake of Mr. Thompson's bees?

Example:

Bees require a balanced diet of nectar (sugar), pollen (protein), and water. Poor forage quality or a lack of diverse flowering plants can lead to malnutrition and weakened colonies. Mr. Thompson could:

Plant bee-friendly flowers such as clover, sunflowers, and wildflowers to increase nectar and pollen availability.

Provide supplemental feeding during periods of poor nectar flow, such as sugar syrup (for energy) and pollen patties (for protein).

Ensure the hives are positioned in areas with adequate access to natural forage and water sources.

Long-Term Management and Prevention:

What long-term strategies can Mr. Thompson implement to maintain a healthy apiary and prevent future problems in his hives? How can he monitor colony health and ensure that his bees remain productive?

Example:

Mr. Thompson should regularly inspect the hives for signs of disease, pests, or poor colony health. He should implement integrated pest management (IPM) strategies to minimize the use of pesticides and ensure a balanced, healthy environment for the bees.

Regular monitoring of Varroa mite populations using mite-counting techniques is critical. Treatment should be applied if mite levels exceed safe thresholds.

Encourage genetic diversity by introducing queens from different colonies to reduce the likelihood of inbreeding and disease susceptibility.

Keep a beekeeping log to track changes in bee health, honey production, and foraging behavior. This will help identify trends or patterns and make it easier to diagnose problems early.

Reflection Questions:

How do environmental factors, such as forage availability and weather conditions, impact bee colony health and honey production?

Why is regular hive inspection and monitoring of pest populations critical in maintaining healthy bee colonies?

What role do integrated pest management (IPM) and good nutrition play in preventing disease outbreaks and ensuring the long-term health of bee populations?

Part 2 DISEASES OF ANIMALS

CHANNELS OF INFECTION

There are many diseases of animals. Some of them are so dangerous that they can kill animals. The diseases can be divided into non-infectious and infectious ones.

The diseases can involve any system of the body: the cardiovascular system (for example, pericarditis), the respiratory



system (pneumonia), the alimentary tract (hepatitis), the urinary system (nephritis), the blood (anaemia), and the skin (eczema). Some problems arise due to metabolic

disorders (ketosis of ruminants), nutritional deficiencies (vitamin A deficiency), and poisoning by chemical agents, fertilizers, fungi, or ferns. Some diseases affect mainly the young (rickets), the others are common to all farm animals (tuberculosis, botulism, rabies).

There is a number of ways by which microorganisms may be introduced into the living tissues of the animal body. The most common of these are as follows, namely:

1. **Through the Digestive Tract.** Bacteria gain entrance into the tissues from the digestive tract where they have been brought with the food or water. It is not clear in all cases how the

invading organisms get into the tissues from the intestine. It has been demonstrated that mycobacteria will pass through the mucosa with fat globules in the process of digestion and absorption.

2. **Through the Respiratory Tract.** Bacteria are taken into the lungs with the inhaled atmosphere. Pulmonary tubercular affection is often brought about this way.
3. **Through Abrasions of the Skin or Intestinal Mucosa.** The high distribution of bacteria in nature renders it highly probable that in all wounds of the integument microorganisms will reach the fresh tissues. They may come from the cutting or tearing implement, the particles of dirt, which may fall into or upon the cut surface, or from the ducts of the glands of the skin itself.
4. **Through the Agency of Insects.** Some insects carry the virus of certain diseases from the infected and introduce it into the susceptible individuals.

Vocabulary. Learn new words.

Essential Terminology

channel of infection	шлях проникнення інфекції
non-infectious disease	неінфекційне захворювання
infectious disease	інфекційне захворювання
cardiovascular system	серцево-судинна система
pericarditis	перикардит, запалення зовнішньої оболонки серця
respiratory system	дихальна система
pneumonia	пневмонія
alimentary tract	травний шлях
digestive tract	травний шлях

hepatitis	гепатит
urinary system	сечова система
nephritis	нефрит
blood	кров
anaemia	анемія
skin	шкіра
eczema	екзема
metabolic disorder	метаболічне порушення
ketosis	кетоз
nutritional deficiency	нестача поживних речовин
poisoning	отруєння
chemical agent	хімічний чинник
fertilizer	добриво
fungus (pl. fungi)	гриб
fern	папороть
ricketts	рахіт
tuberculosis	туберкульоз
botulism	ботулізм
rabies	сказ
living tissue	жива тканина
bacterium (pl. bacteria)	бактерія
invading organism	хвороботворний організм
intestine	кишечник
mucosa	слизова оболонка
fat globule	часточка жиру
digestion	травлення
absorption	всмоктування
inhaled	повітря, що вдихається
atmosphere	
pulmonary	легеневий
tubercular	туберкульозне ураження

affection	
abrasion	подряпина
intestinal	кишковий
integument	зовнішній покрив
duct of the gland	протока залози
susceptible	сприйнятливий

TASK 1. Answer the questions:

1. What groups of diseases do you know?
2. What organs and systems of the organism can they affect?
3. What may be the causes of poisoning?
4. What disease affects young animals?
5. What diseases are common to all the animals?
6. What are the main ways of introducing microorganisms into the living tissues?
7. In what way do the bacteria get into the digestive tract?
8. Is it clear how the invading organisms get into the tissues from the intestine?
9. How do bacteria get into lungs?
10. Describe the process of distribution of bacteria through abrasions of skin.
11. What do some insects carry from the infected individuals to the susceptible ones?

TASK 2. Complete the sentences:

1. Bacteria ... entrance into the lungs.
2. Some diseases to all farm animals.
3. Microorganisms may be ... into the living tissues of the animal ...
4. Bacteria will pass through the mucosa with
5. ... are taken into lungs with the
6. Some diseases ... mainly the young.

7. They may come from the ... implement.
8. Some ... carry the
9. There are four
10. The diseases non-infectious and infectious ones.
11. The diseases ... any system of the body.
12. Some problems ... metabolic disorders.

TASK 3. Fill in the sentences with a suitable modal or semi-modal word (*can, may, should, must, have to, need, could, might, would, dare, ought, will, shall*):

1. Your pet doesn't look well. You ... take it to the vet.
2. How ... you treat animals in such a way?
3. Animals ... to be protected.
4. ... I help you to examine the horse?
5. You ... to wear medical gloves when you operate on animals.
6. The professor said: "I am sure there ... be a medicine for cancer one day".
7. The symptoms are not very clear. It ... be tuberculosis, though I am not sure.
8. You ... to consult your colleagues if you don't know exactly what disease it is.
9. This vet is very professional. He ... treat any disease.
10. ... I be present when you operate on animals? This experience ... be very valuable for me.
11. ... you comment on the problem with that calf, please?
12. You ... revise this material. You don't remember it well.

TASK 4. Distinguish between *must (mustn't)* and *have to (won't have to, don't have to, had to, will have to, didn't have to)*:

1. The professor: "You ... learn the symptoms by heart".
2. The professor said that I ... study this problem.

3. I ... look the term up in the dictionary because I didn't remember it well.
4. The students ... take an exam in Anatomy in June.
5. You ... give this medicine to the animal. It is not certified.
6. You ... come to the University today. It is Saturday.
7. He ... explain it to me. I understood it myself.
8. We ... go to the laboratory next week. The professor is at the conference.

TASK 5. Cooperative Learning Exercise: Exploring Channels of Infection in Animal Diseases

Objective:

Students will work together to identify and understand the various channels through which animal diseases can spread, and how different preventive measures can be implemented.

Materials Needed:

Chart paper or whiteboard

Markers

Research materials (books, articles, or internet access for further information)

Scenario handouts (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by explaining the concept of channels of infection, which refers to the routes through which pathogens (bacteria, viruses,

parasites, etc.) are transmitted between animals or from animals to humans (zoonoses).

Briefly discuss the major channels: direct contact, indirect contact, airborne transmission, vector-borne transmission, and fomite transmission.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one channel of infection (e.g., direct contact, indirect contact, airborne, vector-borne, fomite).

Research and Discussion (15 minutes):

Each group will research their assigned channel of infection using the available materials (books, articles, or internet).

Students should discuss and note down the following points:

Description of the channel of infection (What does it involve?)

Examples of diseases spread through this channel (e.g., rabies for direct contact, malaria for vector-borne)

Preventive measures to stop the transmission (e.g., vaccinations, pest control, hygiene practices)

Real-world examples (local or global outbreaks or scenarios)

Group Collaboration (15 minutes):

After researching, groups will create a poster or chart summarizing their findings. The chart should include:

A definition of the channel of infection.

A visual representation of how diseases spread through this channel.

The names of diseases that spread via this channel.

Prevention strategies or control measures.

Groups will assign different tasks to ensure collaboration: one member could be in charge of writing, another for drawing,

another for organizing ideas, and others for sharing findings and reviewing.

Presentations (15 minutes):

Each group will present their findings to the class, explaining the infection channel, examples of diseases, and suggested prevention strategies.

After each presentation, allow a few minutes for Q&A or class discussion. Students can ask questions or contribute additional information based on their own knowledge.

Reflection and Conclusion (10 minutes):

To conclude the activity, engage the class in a short discussion:

What surprised you about the ways diseases can spread?

How can these transmission routes affect animal populations, humans, and ecosystems?

How can we reduce the risk of animal diseases spreading in our communities?

Have each group write down one key takeaway from the exercise, and share it with the class.

BOVINE TUBERCULOSIS



The disease caused by *Mycobacterium bovis* is characterized by the progressive development of tubercles in any of the organs in

most species.

Tuberculosis occurs in every country of the world and is of major importance in dairy cattle. The relative importance of environment in causation of the disease is suggested by the high incidence in those countries in which animals are housed indoors during the winter months. Amongst beef cattle the degree of infection is usually much lower because of the open range conditions under which they are kept.

However, individual beef herds may suffer a high morbidity if infected animals are introduced and large numbers of animals have to drink from stagnant water holes, especially during dry seasons. Apart from actual deaths, it is estimated that infected animals lose 10 to 25 per cent of their productive efficiency.

All species and age groups are susceptible to *Mycobacterium bovis*, with cattle, goats and pigs most susceptible and sheep and horses showing a high natural resistance.

Although the organism does not form spores, it is moderately resistant to heat, desiccation and many disinfectants. It is readily destroyed by direct sunlight, unless it is in a moist environment. In warm, moist, protected positions, it may remain viable for very long periods.

Transmission. The main source of infection is the infected animal. Organisms are excreted in the exhaled air, in sputum, faeces, milk, and urine, vaginal and uterine discharges from open peripheral lymph nodes. Commonly, entry is affected by inhalation or ingestion. Inhalation is more probable when animals are housed indoors. On the other hand, ingestion is more common route of infection when animals are at pasture and contaminate the feed and communal drinking water. Under natural conditions, stagnant drinking water may cause infection up to 18 days after its last use by a tuberculous animal.

Separation of infected and susceptible animals by a fence provides practical protection against the spread of disease.

The drinking of infected milk by young animals is one of the commonest methods by which tuberculosis is spread.

Vocabulary. Learn new words.

Essential Terminology

tuberculosis	туберкульоз
to cause	спричинити
causation	спричинення
tubercle	туберкула, вузлик
to occur	зустрічатися, траплятися
dairy cattle	молочна худоба
beef cattle	м'ясна худоба
herd	стадо
stagnant water	непроточна вода
resistant	стійкий
desiccation	висушування
viable	життєздатний
to excrete	виділяти
to inhale	вдихати
to exhale	видихати
sputum	слина
faeces	фекалії
urine	сеча
vaginal	вагінальний
uterine	маточний
discharges	виділення
node	вузол
ingestion	проковтування
referable	що стосується
lesions	пошкодження; ураження
contaminate	заражати

separation
spread
of disease

відокремлення
поширення хвороби

TASK 1. Fill in a preposition:

To be caused ... bacteria	Спричинятись бактеріями
Development ... tubercles	Розвиток туберкул
To be characterized ... development	Характеризуватись розвитком
To be introduced ... the living tissues	Потрапляти в живі тканини
To be ... major importance ... dairy cattle	Бути важливим для молочної худоби
To be resistant ... heat	Бути стійким до тепла
To be brought ... food	Заноситись з їжею
To remain viable ... long periods	Залишатись життєздатним протягом тривалого часу
The relative importance ... environment ... the causation ... the disease	Відносна важливість навколишнього середовища у спричиненні хвороби
To get ... tissues ... the intestine	Потрапляти до тканин з кишечника
To be susceptible ... bacteria	Бути чутливим до бактерій
The degree ... infection is lower because ...	Ступінь інфікування нижчий через ...
To pass ... the mucosa ... fat globules ... the process ... digestion	Пройти крізь слизову оболонку з часточками жиру в процесі травлення
To be kept ... proper conditions	Утримуватись у належних умовах
The source ... infection	Джерело інфекції
To be taken ... lungs ... the inhaled atmosphere	Потрапляти до легень із повітрям, що вдихається

To be excreted ... the air	Видихатись у повітря
Separation ... a fence	Відокремлення огорожею
Protection ... the spread ... disease	Захист від розповсюдження хвороби
The way ... which tuberculosis is spread	Шлях поширення туберкульозу
Discharges ... lymph nodes	Виділення з лімфатичних вузлів
To be brought this way	Спричинятись у цей спосіб

TASK 2. Find all the passive constructions in the text and underline them.

TASK 3. Write a Past Participle for each verb:

to introduce

to bring

to demonstrate

to take

to inhale

to distribute

to carry

to cause

to characterize

to drink

to spread

to infect

to excrete

to contaminate

to separate

to provide

to destroy

to estimate

to lose

TASK 4. Write sentences in the Passive Voice using the words from the brackets:

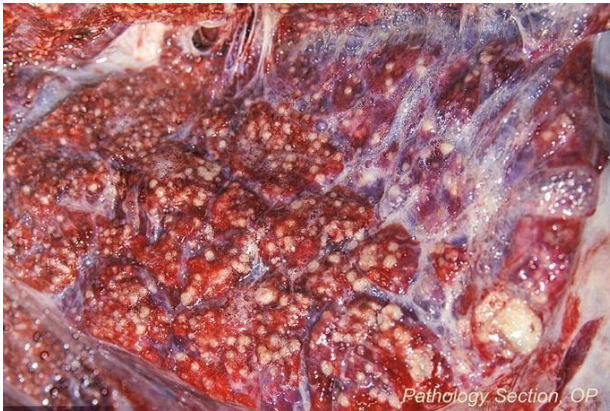
1. This disease (to cause) by unknown bacteria.
2. This virus (to carry) by insects.
3. The cows (to infect) while drinking from stagnant water holes last month.
4. Tuberculosis (to spread) by drinking infected milk.
5. The infected animals (to examine) by our best specialists in the afternoon.
6. Organisms (to excrete) into the atmosphere.
7. Unfortunately, several calves (to lose) because of improper care.
8. We promise that proper care (to provide) for the animals on our farm.
9. The examination showed that his cow (to keep) under good conditions.
10. The infected animals (to separate) from the herd till their full recovery.

BOVINE TUBERCULOSIS (CLINICAL FINDINGS)

Although signs referable to localization in a particular organ usually attract attention to the possible occurrence of tuberculosis, some general signs are also evident. Some cows with extensive tubercular lesions are clinically normal but progressive emaciation unassociated with other disease should always arouse suspicion of tuberculosis. A capricious appetite and fluctuating temperature are also commonly associated with the disease. The condition of the hair-coat is variable; it may be rough or sleek. Affected animals tend to become more docile and

sluggish but the eyes remain bright and alert. These general signs often become more pronounced after calving.

Pulmonary involvement is characterized by a chronic cough due to bronchopneumonia. The cough is loud or paroxysmal, occurring only once or twice at a time and is low, suppressed and moist. It is easily stimulated by squeezing the pharynx or by exercise and is most common in the morning or in



cold weather. In the advanced stages when much lung has been destroyed, dyspnoea with increased rate and depth of

respiration becomes apparent. At this stage, abnormalities may be detected by auscultation and percussion of the chest. Areas with no breath sounds and dullness on percussion are accompanied by areas in which squeaky râles are audible.

The most common signs of alimentary involvement are caused by pressure of enlarged lymph nodes on surrounding organs.

Tuberculous mastitis is of major importance because of the danger to public health, and because of the spread of the disease to calves and the difficulty of differentiating it from other forms of mastitis. Its characteristic features are marked indurations and hypertrophy which usually develops first in the upper part of the udder, particularly in the rear quarters. Palpation of the supramammary lymph nodes is essential in all

cases of suspected tuberculous mastitis. Enlargement of the nodes with fibrosis of the quarter does not necessarily indicate tuberculosis but enlargement suggests either tuberculosis or lymphomatosis. In the early stages, the milk is not macroscopically abnormal but later very fine floccules appear which settle after the milk stands leaving a clear, amber fluid. Later still the secretion may be an amber fluid only.

Essential Terminology

emaciation	виснаження
to fluctuate	коливатися
sleek	лискучий
docile	спокійний
sluggish	повільний
involvement	ураження
suppressed	придушений
paroxysmal	судомистий; припадочний
pharynx	глотка
dyspnoea	задишка
auscultation	вислухування
percussion	вистукування
squeaky râles	сухі хрипи
mastitis	мастит
marked	помітний
indurations	затвердіння
hypertrophy	гіпертрофія
supramammary	лімфатичні вузли, що
lymph nodes	розміщені над вим'ям
lymphomatosis	лімфоматоз
floccules	осади

TASK 1. Answer the questions:

1. What are the signs of tuberculosis?

2. What is the condition of coat in tuberculous animals?
3. What are their appetite and behavior like?
4. Are the signs more pronounced after calving?
5. What are the characteristics of tuberculous cough?
6. How can abnormalities be detected?
7. What are the most common signs of alimentary involvement caused by?
8. Why is tuberculous mastitis dangerous?
9. What is the characteristic feature of tuberculous mastitis?

TASK 2. Turn the following sentences into the Passive Voice:

1. A chronic cough characterizes pulmonary involvement.
2. Squeezing stimulates coughing.
3. Tuberculosis destroys lungs.
4. We may detect abnormalities by percussion.
5. Pressure of enlarged lymph nodes causes alimentary signs.
6. The veterinary doctor suspects tuberculosis.
7. The students suggest mastitis.
8. One can hear squeaky râles.
9. One can notice strange behavior in infected animals.
10. Doctors should cure suffering animals.
11. We must give this medicine to the sick animal.
12. It is necessary to give animals enough clean water.

TASK 3. Cooperative Learning Exercise: Investigating Bovine Tuberculosis (BTB)

Objective:

Students will collaboratively explore different aspects of Bovine Tuberculosis (BTB), including its causes, transmission routes, impact on agriculture and public health, and control strategies. This exercise aims to foster teamwork, critical thinking, and a

deeper understanding of BTB's role in both animal and human health.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper or whiteboard

Markers

BTB case study handouts (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by giving a brief overview of Bovine Tuberculosis (BTB): BTB is a chronic infectious disease caused by *Mycobacterium bovis*, primarily affecting cattle, but it can also infect other animals and humans.

The disease can be spread through respiratory droplets, direct contact with infected animals, and contaminated milk or meat.

Infected animals may show mild symptoms, such as coughing, weight loss, and lethargy, but in some cases, the disease can be fatal.

Explain that the class will explore BTB's transmission, prevention, and impact on agriculture and public health.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group a specific aspect of BTB to research and present:

Group 1: Causes and Transmission of Bovine Tuberculosis

Group 2: Symptoms and Diagnosis of BTB in Cattle

Group 3: Impact of BTB on Livestock and Dairy Industries

Group 4: Control and Prevention Strategies for BTB

Group 5: BTB as a Zoonotic Disease – Impact on Human Health

Group Research and Discussion (20 minutes):

Each group will research their assigned topic, using available materials (books, articles, internet). Groups should focus on the following:

Causes and Transmission: How is BTB transmitted between animals? What are the primary channels (e.g., respiratory, direct contact, contaminated milk)?

Symptoms and Diagnosis: What clinical signs should farmers look for? How is BTB diagnosed in cattle (e.g., tuberculin skin test, blood tests)?

Impact on Agriculture: How does BTB affect cattle production, milk yields, and the economy? What are the challenges for farmers?

Control and Prevention: What measures can be taken to control BTB? (e.g., testing, culling infected animals, vaccination, biosecurity protocols)

Zoonotic Impact: How does BTB affect humans? What is the risk of transmission, and what preventive measures are needed?

Group Collaboration (15 minutes):

After research, groups will create a visual summary of their findings (e.g., a poster or infographic). This should include:

Key points about the assigned topic

Relevant statistics, diagrams, or images to illustrate their points

Prevention and control measures (where applicable)

Group members should work collaboratively to ensure all aspects are covered, with each student taking responsibility for a part of the presentation.

Group Presentations (20 minutes):

Each group will present their findings to the class. Presentations should be clear and concise (about 5 minutes per group) and include:

A summary of their topic

Key findings and insights

Suggestions for addressing challenges or improving control measures related to BTB

Class Discussion and Reflection (10 minutes):

After all the presentations, engage the class in a discussion:

What are the most effective strategies for preventing the spread of BTB in cattle populations?

How do control measures differ based on whether the disease affects livestock, wildlife, or humans?

What can be done to support farmers and veterinarians in managing BTB outbreaks?

How can awareness about BTB as a zoonotic disease help in human health prevention?

Encourage students to reflect on how BTB is both an animal and public health issue.

Wrap-Up (5 minutes):

Conclude the activity by reviewing the key takeaways about BTB, highlighting the importance of collaboration between animal health experts, farmers, and public health authorities to manage and control the disease effectively.

Assessment:

Group Work: Assess each group based on their collaboration, the quality of their research, and how effectively they present their topic.

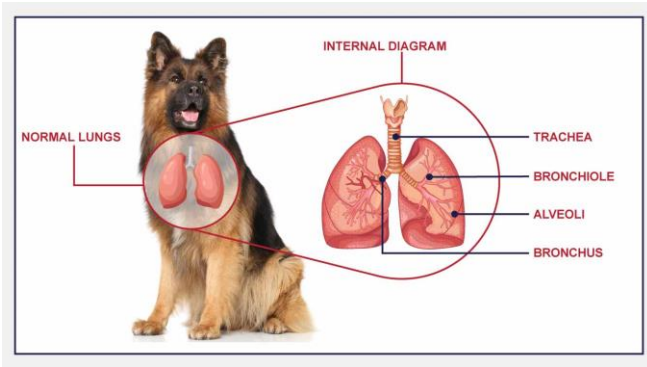
Presentations: Evaluate the clarity and depth of each group's presentation, as well as how well they explain their findings.

Class Participation: Consider the engagement of students in the discussion and how well they contribute ideas during the reflection phase.

PNEUMONIA

Pneumonia is an acute or chronic inflammation of the lungs and bronchi. The usual cause is primary viral infection of the lower respiratory tract.

Canine distemper virus, adenovirus types 1 and 2,



parainfluenza virus, and feline calicivirus cause lesions in the distal airways and predispose to

secondary bacterial invasion of the lungs. Parasitic invasion of the bronchi may result in pneumonia.

Clinical Findings: The initial signs are usually those of the primary disease. Lethargy and anorexia are common. A deep cough is noted. Progressive dyspnoea, “blowing” of the lips, and cyanosis may be evident, especially on exercise. Body temperature is increased moderately, and there may be leukocytosis. Complications such as pleuritis, mediastinitis, or invasion by opportunistic organisms may occur.

Diagnosis: Analysis of bronchoalveolar lavage fluid is valuable for the diagnosis of bacterial infections. Cytologic examination can demonstrate the animal’s immune response and

indicate the intracellular or extracellular location of bacteria. Bacterial culture and sensitivity testing is required and may include anaerobe and mycoplasma culture, especially in refractory cases. A viral etiology generally results in an initial body temperature of 40-41°C. Leukopenia, often expected, may not be seen in many viral respiratory infections. A history of recent anesthesia or severe vomiting indicates the possibility of aspiration pneumonia. Acutely affected animals may die within 24 – 48 hr of onset.

Treatment: The animal should be placed in a warm, dry environment. Anemia, if present, should be corrected. If cyanosis is severe, oxygen therapy may be used, administered by means of an oxygen cage, with a concentration of 30-50%.

TASK 1. Read the text and complete the sentences. Choose the correct answer: *a, b, c* or *d*.

1. Pneumonia is an acute or chronic inflammation of the
a trachea b pharynx and larynx c bronchi and lungs
d lymphatic system
2. can indicate the intracellular or extracellular location of bacteria.
a radiologic test b physical examination c genetic testing
d cytologic examination
3. A viral etiology results in the initial body temperature of
a 36,6°C b 40-41°F c 40-41°C d 37-38°C
4. Acutely affected animals may die within
a 2-3 weeks b 1-2 hours c half a year d 24-48 hours
5. In a case of pneumonia the animal should be placed in a environment.

a dry and warm b cold and harsh c noisy d
extreme

TASK 2. Read the statements and write whether they are True (T) or False (F):

1. The usual cause of pneumonia is primary viral infection of the upper respiratory tract. T/F
2. Lethargy and anorexia are the common initial signs of pneumonia. T/F
3. The animal's immune response cannot be demonstrated by cytologic examination. T/F
4. Headache indicates the possibility of aspiration pneumonia. T/F
5. Oxygen therapy is used in the case of severe cyanosis. T/F

TASK 3. Complete the sentences with the help of the words from the list:

severe valuable for invasion results in pleuritis

1. Parasitic of the bronchi may be the cause of pneumonia.
2. is one of the complications of pneumonia.
3. Analysis of bronchoalveolar lavage fluid is the diagnosis of bacterial infections.
4. A viral etiology an initial body temperature of 40-41°C.
5. If cyanosis is, oxygen therapy may be used.

TASK 4. Find and correct one mistake in each sentence:

1. Pneumonia is the chronic inflammation of the lungs and bronchi.
2. Adenovirus types 1 and 2 predisposes to primary bacterial invasion of the lungs.
3. Leukopenia is always seen in viral respiratory infections.
4. Cytologic examination doesn't indicate the intracellular or extracellular location of bacteria.

5. If anemia is present, it cannot be correct.

TASK 5. Read the definitions and find the words in the text:

1. The body's immune response to harmful stimuli such as pathogens, damaged cells or irritants; it can be acute or chronic (noun) : i_____

2. The inflammation of the pleura; one of the complications of pneumonia (noun) : p_____

3. An infection caused by a virus (adjective) : v_____

4. The cause of the disease or the scientific study (noun) : e_____

5. An illness or disease which is very bad and serious (adjective): s_____

TASK 6. Cooperative Learning Exercise: Understanding Animal Pneumonia

Objective:

Students will collaboratively research and understand the causes, symptoms, diagnosis, treatment, and prevention strategies for pneumonia in animals, focusing on various species. The activity aims to develop teamwork, research, and presentation skills while deepening knowledge on the topic of animal pneumonia.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper or whiteboard

Markers

Scenario handouts (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by explaining that animal pneumonia refers to a group of diseases that affect the lungs of animals, causing inflammation and difficulty breathing.

Discuss the causes of pneumonia, such as bacteria, viruses, fungi, and environmental factors (e.g., poor ventilation, cold stress, and overcrowding).

Explain the importance of diagnosing pneumonia early in animals, as it can lead to serious complications, reduced productivity in livestock, or even death.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to animal pneumonia:

Group 1: Causes of Pneumonia in Different Animal Species (e.g., cattle, horses, pigs, poultry, and companion animals)

Group 2: Symptoms and Clinical Signs of Pneumonia in Animals

Group 3: Diagnosis of Animal Pneumonia (Methods and Tools)

Group 4: Treatment and Management of Pneumonia in Animals

Group 5: Prevention and Control Measures for Pneumonia in Animals (Biosecurity, Environment, Vaccination)

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using the available materials.

Students should focus on answering the following questions:

Causes (Group 1): What are the common pathogens (bacteria, viruses, fungi) responsible for pneumonia in different animals?

How do these pathogens affect various species?

Symptoms (Group 2): What are the common signs of pneumonia in animals? How can these be recognized early?

Diagnosis (Group 3): What diagnostic methods are used to confirm pneumonia in animals (e.g., physical examination, blood tests, X-rays, or ultrasounds)?

Treatment (Group 4): What are the treatment options for pneumonia in animals? How do veterinarians manage the disease (e.g., antibiotics, anti-inflammatory drugs, supportive care)?

Prevention (Group 5): What preventive measures can be taken to reduce the risk of pneumonia in animals? How can biosecurity, vaccination, and environmental management help?

Group Collaboration (15 minutes):

After researching, each group will collaborate to create a visual summary (e.g., a poster, infographic, or presentation) of their findings. This should include:

Key points about their assigned topic

Relevant statistics, images, or diagrams to illustrate their points

Prevention and control measures (if applicable)

The group members should collaborate to ensure all sections are covered and balanced.

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear, concise, and informative (about 5 minutes per group). The presentation should include:

An overview of their assigned topic

Important details and examples related to their research

Visual aids to help explain complex ideas (e.g., charts, diagrams, photos)

Encourage students to engage with their classmates by asking questions or inviting discussion after each presentation.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

How can farmers, veterinarians, and pet owners reduce the risk of pneumonia in their animals?

Why is early detection and treatment of pneumonia so important for animal health?

What role does the environment play in the spread of pneumonia in animals? How can it be managed?

Encourage students to reflect on the broader impact of pneumonia on animal welfare, productivity, and public health.

Wrap-Up (5 minutes):

Conclude the activity by reviewing the key takeaways from the exercise, such as the importance of early detection, effective treatment, and prevention strategies for pneumonia in animals.

Assessment:

Group Work: Assess each group based on their collaboration and research. Did they provide accurate and comprehensive information?

Presentations: Evaluate the quality of the presentations, including the clarity of the explanation, use of visual aids, and engagement with the class.

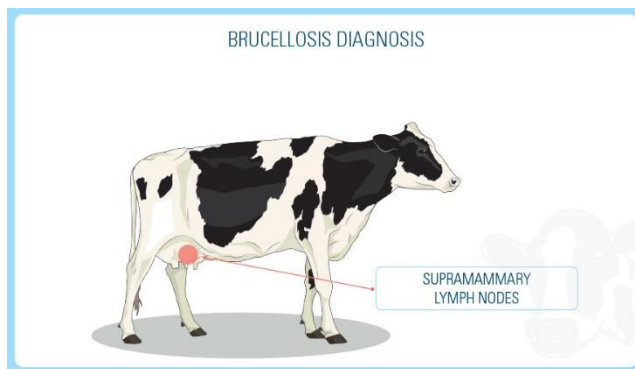
Class Participation: Consider how well students participated in the discussion and contributed ideas during the reflection phase.

BRUCELLOSIS

Brucellosis, also called Bang's disease, Crimean fever, Gibraltar fever, Malta fever, is a highly contagious zoonosis caused by ingestion of unsterilized milk or meat from infected animals or close contact with their secretions. Transmission from human to human, through sexual contact or from mother to child, is rare but possible. *Brucella* are small, Gram-negative, non-

motile, non-spore-forming, rod shaped (coccobacilli) bacteria. They function as facultative intracellular parasites causing chronic disease, which usually persists for life. Symptoms include profuse sweating and joint and muscle pain. Brucellosis has been recognized in animals including humans since the 20th century.

Under the name Malta fever, the disease now called



brucellosis first came to the attention of British medical officers in the 1850s in Malta during the Crimean War. The

causal relationship between organism and disease was first established in 1887 by Dr. David Bruce.

In 1897, Danish veterinarian Bernhard Bang isolated *Brucella abortus* as the agent; and the additional name Bang's disease was assigned. In cattle, this disease is also known as contagious abortion and infectious abortion.

Species infecting domestic livestock are *B. melitensis* (goats and sheep), *B. suis* (pigs), *B. abortus* (cattle and bison), *B. ovis* (sheep), and *B. canis* (dogs). The bacterium *Brucella abortus* is the principal cause of brucellosis in cattle. The bacteria are shed from an infected animal at or around the time of calving or abortion. The most common clinical signs of cattle infected with *Brucella abortus* are high incidences of abortions, arthritic joints and retained after-birth. Brucellosis in humans is usually associated with the consumption of unpasteurized milk and soft cheeses made from the milk of infected animals.

TASK 1. Read the text and complete the sentences. Choose the correct answer: *a, b, c* or *d*:

1. Brucellosis is also called
a Bing's fever b European fever c Western fever
d Bang's disease
2. Brucella are small rod shaped bacteria.
a Gram-positive b motile c non-spore-forming
d Gram-neutral
3. Brucellosis is caused by ingestion of unsterilized milk or from infected animals.
a water b meat c vegetables d fruits
4. Brucellosis was discovered by British medical officers in the in Malta during the Crimean War.
a 1850s b 1770s c 1910s d 1690
5. Brucellosis excludes the symptom of
a sweating b anorexia c joint pain d muscle pain

TASK 2. Read the statements and write whether they are True (T) or False (F):

1. Brucellosis is also called Bang's disease, Crimean fever, Gibraltar fever or Malta fever. T/F
2. Bang's disease is an acute disease which cannot persist for life. T/F
3. The causal relationship between organism and disease was first established by Danish veterinarian Bernhard Bang. T/F
4. Crimean fever infects domestic livestock: goats, sheep, pigs, cattle, bison and dogs. T/F
5. Brucellosis doesn't result in abortions, arthritic joints and retained after-birth. T/F

TASK 3. Complete the sentences with the help of the words from the box:

are shed from ingestion transmitted isolated came to the attention

1. Bang's disease is caused by of unsterilized milk or meat from infected animals.
2. Brucellosis can be from human to human, through sexual contact or from mother to child.
3. The disease first of British medical officers in Malta.
4. Bernhard Bang *Brucella abortus* as the agent.
5. The bacterium *Brucella* an infected animal at the time of calving or abortion.

TASK 4. Find and correct one mistake in each sentence:

1. Brucellosis can be caused by close contact with the animals' secretions.
2. Brucella are small, Gram-positive, non-spore-forming, rod shaped bacteria.
3. Brucellosis has been recognized in animals since the 20th century.
4. The Bang's disease cannot be associated with the consumption of unpasteurized milk and soft cheeses.
5. In 1997, the additional name of Brucellosis occurred – Bang's disease.

TASK 5. Read the definitions and find the words in the text:

1. A disease that can be passed from person to person by touch (adjective) : c_ _ _ _ _ _ _ _ _ _
2. An infectious disease that can be transmitted between species from animals to humans or from humans to other animals (noun): z_ _ _ _ _ _ _ _
3. Full of germs or pathological microorganisms (used in connection with milk) (adjective) : u_ _ _ _ _ _ _ _ _ _
4. The process of giving birth to a calf (noun) : c_ _ _ _ _ _ _ _

5. Domesticated animals raised in an agricultural setting (noun):
l_____

TASK 6. Cooperative Learning Exercise: Understanding Brucellosis

Objective:

Students will work in groups to explore various aspects of brucellosis, including its causes, symptoms, transmission, impact on agriculture and human health, and strategies for prevention and control.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper or whiteboard

Markers

Brucellosis case study handouts (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by explaining brucellosis, a bacterial infection caused by the genus *Brucella*. This disease primarily affects livestock (cattle, sheep, goats, and pigs) but can also infect humans, typically through direct contact with infected animals or their products (e.g., milk or meat).

Briefly discuss the symptoms in animals (e.g., abortion, infertility, arthritis) and in humans (e.g., fever, sweats, fatigue, joint pain).

Mention that brucellosis is a significant concern for public health and agriculture, making its control and prevention important.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to brucellosis:

Group 1: Causes and Transmission of Brucellosis in Animals and Humans

Group 2: Symptoms and Diagnosis of Brucellosis in Animals and Humans

Group 3: Impact of Brucellosis on Agriculture and Public Health

Group 4: Control and Prevention of Brucellosis in Animals and Humans

Group 5: Brucellosis Case Study – Real-world Outbreaks and Responses

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using available materials. Students should answer the following questions:

Causes and Transmission (Group 1): What are the main species of *Brucella* responsible for the disease in different animals? How is brucellosis transmitted between animals and from animals to humans?

Symptoms and Diagnosis (Group 2): What are the common symptoms of brucellosis in animals and humans? How is the disease diagnosed in both animals (e.g., blood tests, culture) and humans?

Impact (Group 3): How does brucellosis affect livestock and farmers (e.g., loss of productivity, economic costs)? What is the global impact on public health?

Control and Prevention (Group 4): What are the strategies to control and prevent brucellosis in animals and humans? (e.g., vaccination, testing and culling, pasteurization of milk)

Case Study (Group 5): Research a real-world outbreak of brucellosis (e.g., a country, region, or farm). How was the outbreak managed? What were the challenges faced in controlling the spread?

Group Collaboration (15 minutes):

After research, each group will create a visual presentation (poster, infographic, or slide presentation) summarizing their findings. The visual should include:

Key points from their assigned topic

Relevant data, statistics, or real-life examples

Any proposed solutions or recommendations for preventing or controlling brucellosis

Each group member should contribute to the presentation (e.g., writing, designing, explaining)

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear and concise (about 5 minutes per group) and include:

A summary of the group's topic

Key findings, statistics, and visuals

Insights or recommendations based on their research

After each presentation, allow a few minutes for questions or discussion.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

What are the most effective strategies for preventing and controlling brucellosis in livestock populations?

How can public health measures help reduce the transmission of brucellosis from animals to humans?

What are the challenges farmers face in managing brucellosis, and how can they be supported?

How can international cooperation help control brucellosis in areas where it is still prevalent?

Encourage students to reflect on the importance of early detection, public health surveillance, and the role of veterinary services in controlling zoonotic diseases.

Wrap-Up (5 minutes):

Conclude the activity by summarizing the key takeaways about brucellosis:

Its impact on both animals and humans

The importance of prevention and control measures

The need for collaborative efforts between veterinarians, farmers, and public health officials

Assessment:

Group Work: Evaluate each group based on how well they researched and collaborated on their topic, and how effectively they communicated their findings.

Presentations: Assess the clarity, organization, and engagement of the presentations, as well as the use of visuals to enhance understanding.

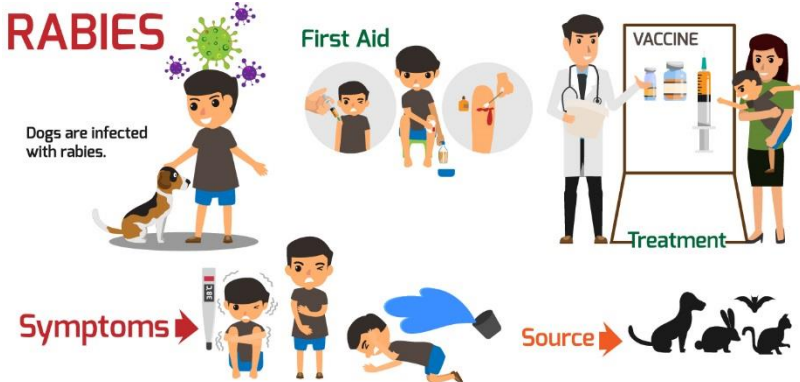
Class Participation: Consider the level of participation in the class discussion and how well students contribute to the conversation.

RABIES

Rabies is an infectious disease that destroys the nerve cells of part of the brain and almost always causes death. Human beings and most other mammals can get the disease. The word *rabies* is Latin for *rage or fury*. The disease probably received its name because infected animals often become excited and attack

any object or animal in their way. Because one of the symptoms of rabies is an inability by the infected animal to swallow water, the disease is sometimes called *hydrophobia*, which means *fear of water*.

Cause. Rabies is caused by a virus known as a *rhabdovirus*. Most mammals can carry this virus, which usually lives in the nerve cells and glands of the *host* (carrier). The rabies virus can be carried in the salivary glands for long periods of time. If the host bites another animal or a human being, or if some of its



infected saliva enters an open wound, the victim may get rabies. Dogs, cats, and wild animals are common sources of infection for people. Research indicates that rabies virus can also enter mucous membranes, such as those lining the nose and eyes. People and other mammals can develop rabies after breathing the air in caves that house large numbers of bats, which may carry the virus.

When rabies virus enters the body, it travels along nerves to the spinal cord and up to the brain, producing inflammation. Symptoms of the disease generally develop about 10 days to 7 months after exposure.

Symptoms in human beings. Among the first symptoms are pain, burning, or numbness at the site of the infection. The

victim complains of headaches and is extremely restless. Muscle spasms make the throat feel full, and swallowing becomes difficult. Later, the patient may have convulsions. After a day or two, a quiet period can occur, which can progress to unconsciousness and, finally, death. Symptoms generally last from 2 to 12 days.

Symptoms in animals. The development of rabies in animals follows the same pattern as in people. During the period of excitation, the animal may wander great distances. It vocalizes almost constantly, often becomes aggressive, and will attack without reason. The disease then usually progresses to paralysis of the jaw and throat muscles, followed by general paralysis and death. Some animals with rabies never show signs of excitation but only of paralysis. This form of the disease is sometimes called *dumb rabies*. Some animals that recover from rabies continue to carry and spread the virus.

Treatment. The first step in treating a person bitten by any animal should be to wash the wound with soap and water. The animal should either be caged and watched for signs of rabies, or killed and its brain tissue tested for rabies virus. If either procedure indicates the presence of rabies, a doctor should begin preventive treatment at once. If the animal cannot be found, the doctor may follow such treatment as a safety measure. Standard preventive treatment in the United States consists of one injection of antirabies globulin followed by five injections of rabies vaccine. Vaccinating all dogs and cats against rabies is an important means of controlling the disease.

TASK 1. Answer the questions:

1. What does rabies destroy?
2. Is rabies a lethal disease?
3. Are human beings susceptible to it?
4. What does the word “rabies” mean?

5. What is the main symptom of rabies?
6. What virus is the disease caused by?
7. What animals are common sources of infection for people?
8. What can you say about the behavior of infected animals?
9. What is dumb rabies?
10. What should a bitten person do first of all?
11. What is the preventive standard treatment?
12. Should all dogs and cats be vaccinated?

TASK 2. Decode the words:

Nbair, ufyr, thso, nladg, ialavs, nwudo, mvitic, oinlamainmft,
npia, snubnesm, cifetinon, athotr, lusmce, ypralsisa, sviur,
ttretmaen

TASK 3. Explain the new terms in English:

1. Rabies is...
2. Hydrophobia is...
3. Rhabdovirus is...
4. A host is ...
5. Dumb rabies is ...
6. Rage or fury is ...

TASK 4. You have answers. Make up questions:

1. Nerve cells. _____ ?
2. Swallow water. _____ ?
3. In the glands of the carrier. _____ ?
4. Dogs, cats, and wild animals. _____ ?
5. 10 days to 7 months. _____ ?

6. Pain, burning, or numbness at the site of the infection.
_____?
7. 2 to 12 days.
_____?
8. To wash the wound with soap and water.
_____?
9. One injection of antirabies globulin followed by five injections of rabies vaccine.
_____?

TASK 5. Cooperative Learning Exercise: Understanding Rabies

Objective:

Students will work together to research and present various aspects of rabies, including its causes, transmission, symptoms, treatment, and prevention strategies for both animals and humans. This exercise encourages teamwork, critical thinking, and enhances understanding of the importance of rabies control and prevention.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper or whiteboard

Markers

Rabies case study handouts (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by introducing rabies, a viral disease caused by the rabies virus (Rabies lyssavirus) that primarily affects mammals, including humans. Explain that rabies is almost always fatal once symptoms appear, but it is preventable through prompt treatment after exposure.

Discuss how the virus is transmitted (usually through the bite or scratch of an infected animal, commonly dogs, bats, or wild animals) and how it affects the nervous system, leading to symptoms like aggression, paralysis, and death.

Mention the importance of rabies vaccination in both animals (to prevent spread) and humans (post-exposure prophylaxis).

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to rabies:

Group 1: Causes and Transmission of Rabies (Focus on animals, human exposure, and reservoirs)

Group 2: Symptoms of Rabies in Animals and Humans (Focus on the stages of the disease and clinical signs)

Group 3: Diagnosis and Treatment of Rabies (Focus on how rabies is diagnosed and the treatment options for humans and animals)

Group 4: Prevention and Control of Rabies (Focus on vaccination programs, public health initiatives, and animal control)

Group 5: Rabies Case Study – Outbreaks and Management (Focus on a historical or current rabies outbreak and how it was managed)

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using available materials (books, articles, internet). Students should aim to answer the following questions:

Causes and Transmission (Group 1): How is rabies transmitted? Which animals are most commonly involved in spreading rabies? What is the incubation period for the virus, and how does it spread to humans?

Symptoms (Group 2): What are the typical symptoms of rabies in animals and humans? How do these symptoms progress in both species? What happens during the "furious" and "paralytic" stages of the disease?

Diagnosis and Treatment (Group 3): How is rabies diagnosed in animals and humans? What are the treatment options for humans who have been exposed to rabies (e.g., post-exposure prophylaxis)? What is the role of rabies vaccination for animals and humans?

Prevention and Control (Group 4): How can rabies be prevented in animal populations? What vaccination programs and public health measures are most effective? How do we prevent human exposure to rabies through animal control?

Case Study (Group 5): Research a real-world rabies outbreak. What was the cause, and how was the outbreak managed? What were the challenges faced during the response, and what lessons can be learned from this outbreak?

Group Collaboration (15 minutes):

After research, each group will work together to create a visual summary (poster, infographic, or slide presentation) of their findings. This visual should include:

Key points and findings related to their assigned topic

Diagrams, charts, or images that help explain complex ideas

A brief explanation of how their findings connect to the broader issue of rabies control and prevention

Each group member should contribute to creating the visual and explaining their part of the topic.

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear, informative, and no more than 5 minutes long.

Presentations should include:

An overview of their assigned topic

Key points, relevant statistics, and important visuals

Practical recommendations or insights based on their research

Allow the class to ask questions or discuss each topic after each presentation.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

What are the most effective ways to prevent rabies in animals and humans?

How can education and awareness help reduce rabies transmission, particularly in high-risk areas?

How do vaccination programs and animal control measures contribute to reducing rabies incidence?

What role do veterinarians, healthcare workers, and local governments play in controlling rabies?

Encourage students to reflect on the importance of global cooperation and the ongoing efforts to eradicate rabies.

Wrap-Up (5 minutes):

Conclude the activity by summarizing the key takeaways about rabies:

It is a preventable but fatal disease if untreated.

Early intervention and vaccination can prevent death.

Prevention relies on animal vaccination programs, controlling exposure to wildlife, and human post-exposure treatment.

Assessment:

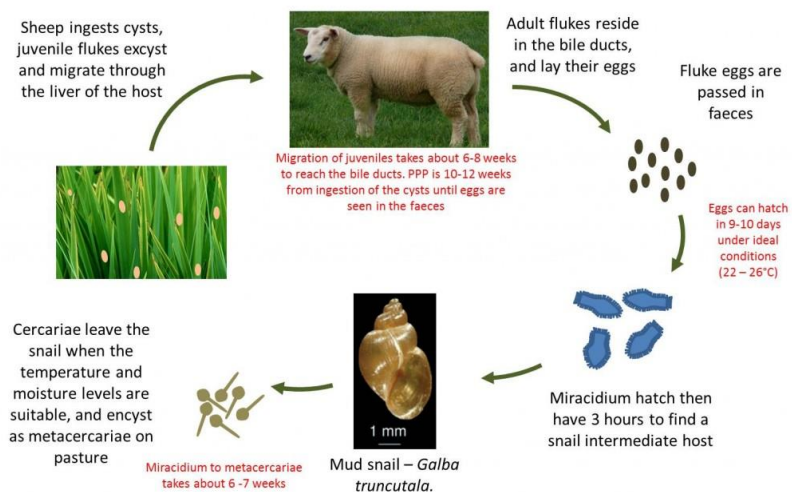
Group Work: Assess the depth and accuracy of each group's research and how effectively they collaborated to complete their task.

Presentations: Evaluate the clarity, organization, and engagement of the group presentations, as well as the use of visuals to enhance understanding.

Class Participation: Consider how actively students participate in the class discussion, asking questions or contributing to reflections.

FASCIOSIS

Fasciolosis is an important helminth disease caused by two trematodes *Fasciola hepatica* and *Fasciola gigantica*. The definitive host range is very broad and includes many herbivorous



mammals, including humans. The life cycle includes freshwater snails as an intermediate host of the parasite. Recently, worldwide losses in animal productivity due to fasciolosis were conservatively estimated at over US\$3.2 billion per annum. In addition, fasciolosis is now recognized as an emerging human disease.

Adult flukes of both species are localized in the bile ducts of the liver or gallbladder. *F. hepatica* measures two to three cm, *F. gigantica* measures four to ten cm in length.

Human and animal fasciolosis occurs worldwide. While animal fasciolosis is distributed in countries with high cattle and sheep production, human fasciolosis occurs, excepting Western Europe, in developing countries.

Clinical signs of fasciolosis in animals are always closely associated with infectious dose. In sheep, as the most common definitive host, clinical presentation is divided into 4 types: Acute I, Acute II, Subacute and Chronic Fasciolosis.

In blood, anemia, hypoalbuminemia, and eosinophilia may be observed in all types of Fasciolosis. Economical effect of fasciolosis in sheep consists in sudden deaths of animals as well as in reduction of weight gain and wool production. In goats and cattle, the clinical manifestation is similar to sheep. However, acquired resistance to *F. hepatica* infection is well-known in adult cattle. Calves are susceptible to disease. In the clinical case the disease is similar to sheep. Importance of cattle fasciolosis consist in economic losses caused by condemnation of livers at slaughter and production losses.

TASK 1. Read the text and complete the sentences. Choose the correct answer: *a, b, c* or *d*:

1. Fasciolosis is a disease caused by trematodes *Fasciola hepatica* and *Fasciola gigantica*.

a genetic b helminth c cancer d allergic

2. The host range of fasciolosis consists of not only the mammals but also humans.

a omnivorous b carnivorous c herbivorous d insectivorous

3. The bile ducts of the liver or are the exact location of adult flukes.

- a gallbladder b kidney c stomach d bronchi
4. Animal fasciolosis is distributed in countries with high production.
- a horse b geese and cattle c ducks and hens d cattle and sheep
5. The clinical presentation of fasciolosis is divided into types.
- a two b three c four d six

TASK 2. Read the statements and write whether they are True (T) or False (F):

1. Worldwide losses in animal productivity due to fasciolosis were estimated at over \$3.2 billion a month. T/F
2. Freshwater snail is the intermediate (or the secondary) host of the parasite. T/F
3. Fasciolosis is an emerging human disease. T/F
4. Human fasciolosis occurs, excepting Western Europe, in developed countries. T/F
5. In goats and cattle the clinical manifestation of fasciolosis is opposite to sheep. T/F

TASK 3. Complete the sentences with the help of the words from the box:

trematodes resistance to life cycle susceptible to infectious

1. The includes freshwater snails as an intermediate host of the parasite.
2. Fasciolosis as the helminth disease is caused by two: *Fasciola hepatica* and *Fasciola gigantica*.
3. Clinical signs of fasciolosis in animals are closely associated with dose.
4. Acquired *Fasciola hepatica* infection is well-known in adult cattle.

5. Calves are also fasciolosis.

TASK 4. Read the definitions and find the words in the text:

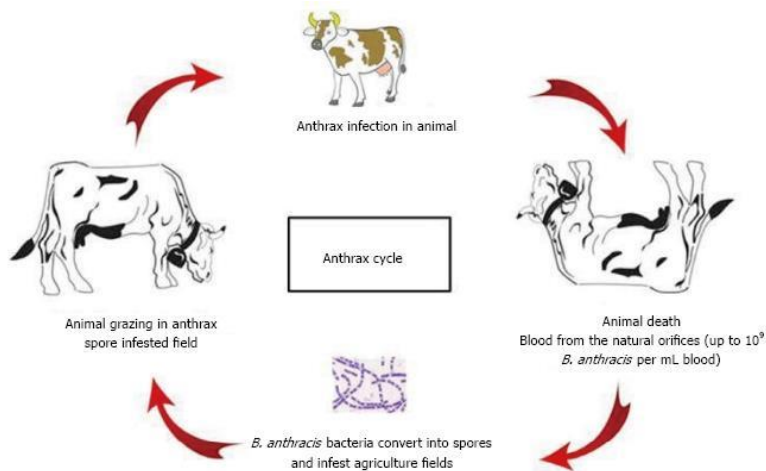
1. Something that is ... can be passed from one animal/person to another, especially through the air (adjective) : i_ _ _ _ _
2. These mammals eat only plant material (adjective): h_ _ _ _ _
3. Oval or worm-like animals, usually no more than a few centimetres in length; synonym to the word “fluke” (noun) : t_ _ _ _ _
4. The killing of animals, usually that of domestic livestock, for food (noun) : s_ _ _ _ _
5. An illness or disease which quickly becomes very serious (≠ chronic) (adjective) : a_ _ _ _

ANTHRAX

Anthrax is an acute disease caused by the bacterium *Bacillus anthracis*. Most forms of the disease are lethal, and it affects both humans and other animals. There are effective vaccines against anthrax, and some forms of the disease respond well to antibiotic treatment.

Like many other members of the genus *Bacillus*, *Bacillus anthracis* can form dormant endospores that are able to survive in harsh conditions for decades or even centuries. Such spores can be found on all continents, even Antarctica. When spores are inhaled, ingested, or come into contact with a skin lesion on a host they may reactivate and multiply rapidly.

Anthrax commonly infects wild and domesticated herbivorous mammals that ingest or inhale the spores while grazing. Ingestion is thought to be the most common route by which herbivores contract anthrax. Carnivores living in the same



environment may become infected by consuming infected animals. Diseased animals can spread anthrax to humans, either by direct contact (e.g., inoculation of infected blood to broken skin) or by consumption of a diseased animal's flesh.

Anthrax spores can be produced in vitro and used as a biological weapon. Anthrax does not spread directly from one infected animal or person to another; it is spread by spores. These spores can be transported by clothing or shoes. The body of an animal that had active anthrax at the time of death can also be a source of anthrax spores.

Until the twentieth century, anthrax killed hundreds and thousands of animals and people each year in Australia, Asia, Africa, North America, and Europe, particularly in the concentration camps during WWII. French scientist Louis Pasteur developed the first effective vaccine for anthrax in 1881.

TASK 1. Read the text and complete the sentences. Choose the correct answer: *a, b, c* or *d*:

1. Anthrax is an acute disease which is caused by
a bacteria *Bacillus anthracis* b bacterium *Brucella*
c bacterium *Bacillus anthracis* d trematode *Fasciola hepatica*
2. Anthrax as a disease responds well to
a homeopathy b acupuncture c blood transfusion
d antibiotic treatment
3. Anthrax spores can be used as a weapon.
a biological b chemical c nuclear d radiological
4. The first effective vaccine for anthrax was developed by scientist
a Dr. David Bruce b Louis Pasteur c Bernhard Bang
d Dr. Robert Koch
5. The vaccine was discovered by French scientist in
a 1881 b 1795 c 1915 d 1671

TASK 2. Read the statements and write whether they are True (T) or False (F):

1. Most forms of anthrax can be easily cured. T/F
2. *Bacillus anthracis* can form dormant endospores which are able to survive in harsh conditions only for 1 month. T/F
3. Spores can multiply if they are inhaled, ingested, or come in contact with a skin lesion on a host. T/F
4. Anthrax cannot infect carnivores. T/F
5. Anthrax spreads directly from one infected animal or person to another. T/F

TASK 3. Complete the sentences with the help of the words from the box:

vaccine route affects in vitro source of

1. Anthrax is an acute disease which both animals and people.
2. Ingestion is the most common by which herbivores contract anthrax.
3. Anthrax spores can be produced and used as a biological weapon.
4. The body of the dead animal that had active anthrax can also be a anthrax spores.
5. French scientist developed the first effective for anthrax in the 19th century.

TASK 4. Find and correct one mistake in each sentence:

1. Anthrax is a chronic disease.
2. Most forms of anthrax are lethalic.
3. *Bacillus anthracis* can form active endospores.
3. When spores are exhaled, they may reactivate and multiply rapidly.
4. Anthrax commonly infects wild and domesticated omnivorous mammals.
5. Until the 19th century, anthrax killed hundreds and thousands of animals and people all around the world.

TASK 5. Read the definitions and find the words in the text:

1. Causing death, or able to cause death; synonym to the word “fatal” (adjective) : l_____
2. A substance which contains a weak form of the bacteria or virus that causes a disease and is used to protect people from that disease (noun) : v_____
3. Not active or not growing at the present time but able to be active later; is used in connection with endospores (adjective): d_____
4. The air, water and land on Earth (noun):
e_____

5. An animal or plant on which a smaller organism is living as a parasite (noun) : h_ _ _

TASK 6. Cooperative Learning Exercise: Understanding Anthrax

Objective:

Students will work collaboratively to explore various aspects of anthrax, including its causes, transmission, symptoms, treatment, impact on agriculture and human health, and prevention strategies. This cooperative learning activity promotes teamwork, research skills, and enhances awareness of how anthrax affects both animals and humans.

Materials Needed:

Research materials (books, articles, or internet access)

Chart paper, whiteboard, or poster board

Markers

Anthrax case study handouts (optional)

Group Size:

4-5 students per group

Instructions:

Introduction (10 minutes):

Begin by introducing anthrax, a bacterial disease caused by *Bacillus anthracis*. Explain that anthrax can affect both animals and humans and is considered a zoonotic disease, meaning it can be transmitted from animals to humans.

Discuss how anthrax is typically contracted through contact with infected animals or contaminated animal products (e.g., hides, wool, meat).

Highlight the potential forms of anthrax infection (cutaneous, inhalational, gastrointestinal, and injectional), and the importance of early diagnosis and treatment.

Mention how anthrax is a concern in agriculture, particularly in livestock industries, and how it can be fatal if untreated in humans and animals.

Form Groups (5 minutes):

Divide the class into small groups of 4-5 students.

Assign each group one of the following topics related to anthrax:

Group 1: Causes and Transmission of Anthrax (Focus on *Bacillus anthracis*, its spores, and how it is transmitted between animals and humans)

Group 2: Symptoms of Anthrax in Animals and Humans (Focus on the different types of anthrax infection and how symptoms manifest in animals and humans)

Group 3: Diagnosis and Treatment of Anthrax (Focus on how anthrax is diagnosed and the treatment options available for animals and humans)

Group 4: Prevention and Control of Anthrax (Focus on vaccination programs, biosecurity measures, and public health initiatives to control anthrax)

Group 5: Anthrax Case Study – Historical or Current Outbreaks (Research a real-world outbreak of anthrax and how it was managed)

Group Research and Discussion (20 minutes):

Each group will research their assigned topic using the available materials (books, articles, internet). They should aim to answer the following questions:

Causes and Transmission (Group 1): What is *Bacillus anthracis*, and how does it form spores? How do animals and humans

become infected with anthrax? What are the environmental factors that contribute to anthrax outbreaks?

Symptoms (Group 2): What are the clinical signs of anthrax in different species (e.g., cattle, sheep, goats, humans)? How do the symptoms vary by the type of infection (cutaneous, gastrointestinal, inhalational)?

Diagnosis and Treatment (Group 3): How is anthrax diagnosed in animals and humans? What laboratory tests are used? What treatments are available for anthrax in both humans (e.g., antibiotics) and animals (e.g., supportive care, vaccination)?

Prevention and Control (Group 4): How can anthrax be prevented in animals and humans? What role does vaccination play in preventing outbreaks? What measures can be taken in farming and livestock management to reduce the risk of anthrax?

Case Study (Group 5): Research a historical or current anthrax outbreak (e.g., in livestock or humans). How was the outbreak identified and managed? What were the key challenges in controlling the disease, and what lessons were learned?

Group Collaboration (15 minutes):

After completing their research, each group will collaborate to create a visual summary (poster, infographic, or slide presentation) of their findings. The visual should include:

Key points and insights from their assigned topic

Diagrams, charts, or images to help explain complex concepts (e.g., lifecycle of *Bacillus anthracis*, symptoms, diagnostic methods)

A brief explanation of how their topic connects to the broader issue of anthrax control and prevention

Each group member should contribute to the creation and explanation of the visual.

Group Presentations (25 minutes):

Each group will present their findings to the class. Presentations should be clear, informative, and no more than 5 minutes long. Presentations should include:

An overview of their assigned topic

Key findings, relevant statistics, and important visuals

Practical recommendations based on their research

After each presentation, allow for a few minutes of questions or discussion from the class.

Class Discussion and Reflection (10 minutes):

After all the presentations, facilitate a class discussion:

What are the best strategies for preventing anthrax outbreaks in livestock populations?

How can humans protect themselves from anthrax exposure, particularly in high-risk areas?

How important is early detection in managing anthrax, and what role do veterinarians play in this process?

What global efforts are being made to control anthrax, particularly in developing countries where outbreaks are more common?

Encourage students to reflect on the broader implications of anthrax, including the importance of education, surveillance, and international cooperation in controlling zoonotic diseases.

Wrap-Up (5 minutes):

Conclude the activity by summarizing the key takeaways about anthrax:

The importance of *Bacillus anthracis* as a biological threat and zoonotic disease.

The need for effective vaccination, biosecurity, and early detection to prevent and control anthrax.

The significant impact of anthrax on both human and animal health, and the role of veterinary public health in managing it.

Assessment:

Group Work: Assess how well each group researched and collaborated on their assigned topic, including the accuracy of their information.

Presentations: Evaluate the clarity, organization, and effectiveness of the group presentations, as well as their use of visuals to communicate key concepts.

Class Participation: Consider the level of participation in the class discussion, including how well students engage with questions or reflections.

PART 3.
ANIMAL PRODUCTS AND NUTRIENS

MILK

Milk is the most nutritive of all foods and a favourite drink of people throughout the world. Milk has almost all the nutrients in large amounts and in such proportions that people need for growth and good health.

All female mammals produce milk to nourish their young. But when we think of milk, we generally think of the



milk that comes from cows. Cows provide most of the milk used in Europe, the United States, Canada, and many other countries. In some parts of the world, however, other animals produce the main supply of milk. Goat milk is popular in some parts of Europe, Latin America, Africa, and Asia. Camels provide milk in the desert lands of

Arabia, Central Asia, and northern Africa. Some South Americans drink llama milk. In Arctic regions, people get milk from reindeer. Sheep provide much of the milk in Greece, Iran, and Turkey. Water buffalo supply milk in Egypt, India, and Pakistan.

Butter, cheese, ice cream, yogurt, and several other foods are made from milk. Milk – or one of its products – is also an

ingredient in many foods, such as cakes, puddings, and sauces. Milk is also used in making industrial goods.

The body needs six kinds of nutrients for energy, growth, and the replacement of worn-out tissue. These nutrients are water, carbohydrates, fats, proteins, minerals, and vitamins. Milk has been called “the most nearly perfect food” but milk is not

“the perfect food” because it lacks enough iron and does not provide all vitamins.

Water is the most vital nutrient. The body needs water to carry out all its life processes. Cow’s milk is about 87 per cent water.

Carbohydrates are a major source of energy for the body. The carbohydrate content of milk is mainly lactose, or milk sugar. In addition to

providing energy, lactose helps the body absorb calcium and phosphorus that are present in milk. Our bones and teeth consist largely of these minerals. Lactose also gives milk its sweet taste.

Fats, like carbohydrates, provide energy. They also supply certain fatty acids that the body must have. Fat gives milk



its rich flavor. Milk fat also contains vitamins A, D, E, and K and several other substances. One of these substances, carotene, gives milk its golden tint. Milk fat appears as tiny globules. A drop of milk contains about 100 million of such globules.

Proteins help the body grow and maintain itself. They also supply energy. The proteins in milk are complete proteins – that is, they contain all the amino acids (protein parts) needed for building blood and tissue. Only egg proteins and the proteins in some meats have a higher food value than milk proteins have. Casein makes up about four-fifths of the protein content of milk. It is found only in milk.

Minerals, like proteins, help the body grow and remain healthy. Calcium and phosphorus are the most important minerals in milk. In fact, milk is the chief food source of calcium. Other minerals in milk include potassium, sodium, sulphur, smaller amounts of aluminum, copper, iodine, manganese, and zinc.

Vitamins are essential for growth, maintaining body tissue, and the prevention of such diseases as beriberi and rickets. Milk provides more vitamins – and in larger amounts – than do most other natural foods. Milk is an excellent source of vitamins A and B₂, and a good source of vitamin B₁. Vitamin A is present in milk as an emulsion and passes into the body via the lymph ducts. Other vitamins in milk include vitamins B₆, B₁₂, C, E, and K and niacin. Milk also has vitamin D, but the quantity is low. Vitamin D is important for babies and children chiefly because it prevents rickets. There is a simple and safe way of rickets prophylaxis: a baby's diet should be supplemented with vitamin D by the direct addition of vitamin D₂ or D₃ to milk. Therefore most dairies add extra vitamin D to milk.

Investigations show that milk and milk products give the following proportions to the total vitamin intake : vitamin A, 12-

14 per cent; D₁, 6-20 per cent; riboflavin, 35-70 per cent; vitamin D, 5-20 per cent.

All milk – human and animal – contains the same nutrients. The amounts differ, however. Compared with cow's milk, for example, the milk from a water buffalo has three times as much fat and 1½ times as much protein. Human milk has fewer proteins and minerals than cow's milk.

Vocabulary. Learn new words.

throughout the world – у цілому світі

female mammals – самки ссавців

their young – своїх малят

used in Europe – котре споживають у Європі

the main supply of milk – головну частку молока

in many foods – у багатьох кулінарних виробках

industrial goods – промислові товари

the most nearly perfect – майже ідеальна

it lacks enough iron – воно має досить мало заліза

gives its golden tint – надає золотистого відтінку

that is – тобто

four-fifths – чотири п'ятих

in addition – крім того

in fact – справді

via the lymph ducts – через лімфатичні протоки

should be supplemented – треба додавати

3 times as much – у три рази більше

human milk – людське молоко

TASK 1. Cooperative learning.

Title: "Dairy Delights Discovery"

Objective:

Students will work in small groups to research different dairy products, their production processes, health benefits, and cultural

significance. They will collaborate to share knowledge and create a final presentation that educates their peers about the importance of dairy in everyday life.

Materials:

Internet access (or books and other resources)

Paper, markers, and poster boards

Projector (if available) for presentations

Samples or images of dairy products (optional)

Index cards for facts

Group Setup:

Divide students into small groups (3-4 members per group).

Assign each group a different aspect of dairy products to research:

Group 1: Types of Dairy Products (milk, cheese, yogurt, butter, cream, etc.)

Group 2: The Dairy Production Process (from farm to table, milking process, pasteurization)

Group 3: Health Benefits and Nutritional Value (calcium, protein, vitamins, etc.)

Group 4: Dairy in Different Cultures (how different cultures use dairy, cultural significance of dairy products, and dairy in traditional foods)

Instructions:

Research Phase (15-20 minutes):

Each group will research their assigned topic using available resources (internet, library books, etc.). Students should focus on gathering key facts, examples, and visual materials related to their topic.

Collaborative Discussion (10 minutes):

Within each group, students will discuss their findings. They should share their knowledge, decide on the most important

information to present, and plan how to explain their topic clearly to the rest of the class.

Creative Presentation (15 minutes):

Each group will create a visual or interactive presentation to share their findings. This could include a poster, a PowerPoint presentation, or even a demonstration of dairy products (e.g., showing cheese or yogurt types, sharing fun facts, or having a tasting session if possible). Encourage creativity!

Presentation Time (10-15 minutes per group):

Each group will present their research to the class. Encourage them to answer questions from their peers after their presentation. Other students should be encouraged to ask questions like, “What’s the difference between types of cheese?” or “How is yogurt made?”

Reflection (5-10 minutes):

After all presentations, conduct a class-wide reflection. Ask students to share what they learned about dairy products that they didn’t know before, and how they might use dairy products in their everyday lives.

Assessment:

Students will be assessed on:

The accuracy and clarity of their presentation.

The creativity and effort they put into the presentation.

How well they collaborate within their group to gather information and share ideas.

Their ability to explain their topic clearly and answer questions from their peers.

Case Study Exercise: Managing Milk Production and Quality in Dairy Farming

Scenario: You are a consultant for a large dairy farm, Green Meadows Dairy, which produces high-quality milk for local markets. Over the past few months, the farm's milk production has started to decline unexpectedly. The farm has a herd of 150 dairy cows, predominantly Holstein and Jersey breeds. The farm has been facing challenges with inconsistent milk yield, some cows showing signs of mastitis, and an increase in off-flavors in the milk.

The farm manager, Mr. Bennett, is concerned about the quality and quantity of milk production and has asked for your assistance in identifying the cause of the problems and finding solutions to improve milk yield and quality.

Your Task:

Assessing Milk Production Decline:

Mr. Bennett has noticed a decline in milk production over the past few months. What could be the possible reasons for this decrease in milk yield? Consider factors related to cow health, nutrition, and management practices.

Example:

Decline in milk production can be due to several factors:

Nutritional deficiencies: If cows are not getting adequate nutrients such as protein, energy, or minerals (e.g., calcium or phosphorus), milk yield can drop.

Poor cow health: Cows suffering from diseases like mastitis, lameness, or bovine tuberculosis can experience reduced milk production.

Inadequate milking procedures: Improper milking techniques or faulty milking equipment can affect milk flow and yield.

Stress: Environmental stressors (heat stress, overcrowding, or transportation stress) can reduce milk production.

Identifying Mastitis:

Mr. Bennett has noticed that some cows are showing signs of mastitis, such as swollen udders, warm to the touch, and reduced milk production. What steps should be taken to diagnose and treat mastitis, and how can it be prevented in the future?

Example:

Mastitis is an inflammation of the udder tissue, usually caused by bacterial infections. To diagnose mastitis:

CMT (California Mastitis Test) can be used to test the milk for somatic cell count (SCC), which increases with mastitis infection.

A culture of milk samples should be performed to identify the specific bacteria causing the infection.

Treatment typically involves administering antibiotics and anti-inflammatory drugs to the infected cow.

Prevention strategies include:

Ensuring good hygiene during milking (cleaning udders and equipment).

Maintaining proper milking machine maintenance to avoid injury to the udder.

Providing adequate bedding to prevent injury or infection.

Ensuring cows are in a stress-free environment.

Investigating Milk Quality Issues (Off-Flavors):

Mr. Bennett has also observed off-flavors in some of the milk being produced, including a soapy taste and a bitter taste. What are the potential causes of these off-flavors, and how can they be mitigated to ensure high-quality milk production?

Example:

Off-flavors in milk can result from a variety of causes:

Soapy taste: This could be due to high levels of detergent residues from improperly cleaned milking equipment. To mitigate this, ensure proper cleaning and sanitizing of all milking equipment with food-grade detergents and thorough rinsing.

Bitter taste: This can be caused by high levels of lipase (an enzyme that breaks down fat) due to poor storage conditions or mastitis. Infected cows might have higher levels of lipase in their milk. To prevent bitter milk, it's important to monitor cows for mastitis and maintain proper refrigeration of milk.

Feed-related off-flavors: Certain feeds, such as silage, clover, or rape, can impart off-flavors. Monitoring the diet of the cows and ensuring the feed is stored correctly can help reduce this.

Heat stress: During hot weather, cows under heat stress can produce milk with off-flavors. Ensuring proper ventilation and providing access to cool water can reduce heat stress.

Improving Milk Yield Through Nutrition:

Poor nutrition can be a significant contributor to reduced milk yield. What are the key nutrients that dairy cows require to maintain high milk production, and how can Mr. Bennett improve the nutritional management of his herd?

Example:

Dairy cows require a balanced diet with adequate amounts of:

Energy (from carbohydrates, fats, and fiber) to support lactation.

Protein (from high-quality forages and grains) to support milk production.

Minerals such as calcium, phosphorus, and magnesium to maintain bone health and prevent metabolic disorders.

Vitamins (especially A, D, and E) for overall health.

Water: Milk production requires high water intake, so ensuring cows have access to clean, fresh water is critical.

Mr. Bennett should consult a nutritionist to develop a balanced diet for his herd, incorporating high-quality feed, supplements if needed, and ensuring the right forage-to-grain ratio to support milk production.

Preventing and Managing Stress:

Mr. Bennett has also noticed that some cows are stressed, which might be affecting their milk production. What are some common sources of stress in dairy cows, and how can he manage them to ensure better milk yields and cow welfare?

Example:

Heat stress: Dairy cows are particularly vulnerable to heat stress, which can significantly reduce milk production. Ensuring proper ventilation, access to cool water, and shaded areas can help reduce stress during hot weather.

Overcrowding: Cows should have enough space to move around and lie down comfortably. Overcrowding can increase stress and lead to poor health and reduced milk yield.

Poor handling: Rough handling during milking or transportation can cause stress. Proper training for staff to handle cows calmly and gently is important.

Social stress: Cows are social animals, and changes in group dynamics (e.g., introducing new animals or separating them from familiar companions) can cause stress. Ensuring stable social groups and minimizing disruptions can help reduce stress.

Long-Term Milk Production Management:

Mr. Bennett wants to improve milk production sustainably in the long run. What strategies can he implement to ensure consistent and high-quality milk production year-round?

Example:

Genetic selection: Mr. Bennett could focus on breeding for high milk production traits, disease resistance, and overall cow health. Using artificial insemination (AI) can allow the introduction of superior genetics into the herd.

Regular health checks: Consistent veterinary care and monitoring of herd health can help prevent diseases before they spread and affect milk production.

Reproductive management: Ensuring that cows have optimal breeding intervals to maintain a steady flow of lactating cows can help ensure consistent milk production throughout the year.

Record keeping: Maintaining detailed records on milk yield, cow health, feeding, and management practices can help identify trends and areas for improvement.

Sustainable feeding practices: Implementing rotational grazing and growing feed crops on the farm can reduce feed costs and improve the overall quality of the cow's diet.

Reflection Questions:

How does nutrition play a crucial role in ensuring both milk yield and milk quality in dairy cows? What are the key nutrients needed?

What are the long-term benefits of genetic selection in improving milk production and herd health?

What role does stress management play in maintaining the productivity of dairy cows, and how can it be minimized in a large dairy farm setting?

MEAT

Meat is animal flesh that is eaten as food. Meat consists largely of muscles, but fat and other animal tissues are also considered meat. The most commonly eaten meat in Europe, in

the United States and Canada comes from animals that are raised for food. These animals and the meat that come from them are cattle (beef and veal), hogs (pork), sheep (lamb and mutton), and poultry (chicken, duck, and turkey). Game, which is meat from wild animals, is also frequently eaten. In addition, fish is included among meat-producing animals.

Humans are omnivorous. They eat both vegetables and meat. Meat is a food of high nutritive value because it provides energy and essential nutrients for men.

About 14 billion kilograms of red meat is eaten in the United



States each year. That averages 54 kilograms of red meat per year for each person. About 34 kilograms is beef; 20 kilograms is pork; 0.9 kilogram is

veal; and 0.45 kilogram is lamb and mutton. Canadians eat an average of 47 kilograms of red meat per person each year. Only the people of Argentina, New Zealand, and Uruguay eat more red meat than North Americans.

Vitamins in meat. In muscles and organs of animals the high metabolic processes take place. This means that they must contain great amounts of important nutrients, such as essential amino acids, vitamins, minerals and fatty acids. They also store some carbohydrates, mostly glycogen, as energy source.

Food components which are in amounts higher than a few micrograms or milligrams per 100 g of food are called

macronutrients. In meat, they make up more than 98 per cent of the edible portion, water included.

Some meat components are needed only in low amounts (in milligrams or micrograms) per person per day. They are vitamins. Many kinds of vitamins can be detected in all meats but the amount of a particular vitamin differs considerably depending on type of meat and whether the meat is cooked or raw. The fat-soluble vitamins A and D are nearly absent in lean meat (LM) of animals, but liver is particularly rich in vitamin A. Ascorbic acid (vitamin C) is detectable in lean meat in relatively small amounts in comparison with fruits and vegetables. Organs, especially liver, have a high ascorbic acid content.

B-vitamins are the principal vitamins in all animal tissues except the bones. The difference in B-vitamins content between different muscles and organs is low. Again, liver is especially high in each B-vitamin. But the most striking fact is that pork contains three to ten times more vitamin B₁ (thiamin) than other meat foods. This high concentration of vitamin B₁ is reached only by some plant concentrates, such as soy flour or dry yeast.

In developed western countries, approximately 50 per cent of humans die from cardiovascular diseases (CVD). Numerous researchers determine the reasons for this in order to reduce the incidence and deaths from CVD. They assume that reducing CVD mortality and morbidity will also reduce the overall morbidity and mortality in these countries.

One thing is clear that there are connections between meat consumption and these diseases as well as with gout and cancer. We can state that the saturated fat and cholesterol of meat products lead to lipid concentrations in human serum. Therefore the elevated serum lipids are considered “risk factors” for the occurrence of CVD. For this reason, it is recommended to consume only small amounts of animal fat and cholesterol, namely 30 per cent of fat in the entire diet and no more than 300

mg of cholesterol daily. One should remember that organ meat, especially liver is rich in cholesterol. Other researchers say that reduced CVD automatically will not mean reduced overall sickness and mortality for the population.

In West and Middle Europe, most consumers demand lean meat (LM), from which all fat is removed. Animal producers follow this demand and produce young slaughter animals with an extremely high LM content. Lean meat is obtained from young slaughter animals which live no more than 200 and sometimes less than 170 days. It contains a very high amount of protein and water and very little fat. But breeding for the purpose to obtain great quantities of lean meat leads to the occurrence of great numbers of stress-susceptible animals, especially swine.

Vocabulary. Learn new words.

animal flesh – тіло тварини

commonly eaten meat – м'ясо, яке часто їдять

lamb – *тут*: м'ясо молодого баранчика

game – дичина (м'ясо)

in addition – крім того

per year per each person – на рік на одну особу

eat an average of – їдять у середньому

take place – відбуваються

per 100 g of food – на 100 г їжі

water included – разом з водою

per person per day – для людини на день

in all meat – у всякому м'ясі

in comparison with – порівняно з

one thing is clear – одне ясно

for this reason – через те

elevated serum lipids – збільшена кількість ліпідів

one should remember – треба пам'ятати

animal producers – *тут*: фермери-тваринники
leads to the occurrence of – веде до появи
great numbers of – велика кількість

TASK 1. Cooperative learning.

Title: "Meat Matters: Exploring the World of Meat"

Objective:

Students will work in small groups to explore different types of meat, their sources, nutritional values, cooking methods, and their cultural significance. The goal is for students to collaborate, share information, and present their findings to help the class understand the role of meat in food and society.

Materials:

Internet access (or books and other resources)

Paper, markers, and poster boards

Projector (if available) for presentations

Pictures or samples of different types of meat (optional)

Index cards for facts

Group Setup:

Divide students into small groups (3-4 members per group).

Assign each group a different aspect of meat to research:

Group 1: Types of Meat (red meat, poultry, seafood, processed meats)

Group 2: Meat Production and Sources (where meat comes from, livestock farming, ethical considerations)

Group 3: Nutritional Value and Health Aspects (protein, fats, vitamins, and minerals in meat; health concerns like cholesterol, etc.)

Group 4: Meat in Cooking and Culture (different cooking methods, meat in various cuisines, cultural significance of meat)

Instructions:

Research Phase (15-20 minutes):

Each group will research their assigned topic using available resources (internet, library books, etc.). They should focus on gathering key facts, images, and examples that help explain their topic.

Collaborative Discussion (10 minutes):

Within each group, students will share their findings and discuss the most important points to include in their presentation. Encourage brainstorming and idea-sharing for ways to present the material clearly and engagingly.

Creative Presentation (15 minutes):

Each group will create a presentation to share their findings. This could include a poster, a digital slideshow, or an interactive demonstration (e.g., showing images of meat cuts, discussing recipes, or explaining meat preparation techniques). Encourage creativity—students could include fun facts, cooking tips, or even a "taste-test" if feasible.

Presentation Time (10-15 minutes per group):

Each group will present their research to the class. Encourage them to speak clearly and answer questions from their peers. Students should be ready for questions such as, “What’s the difference between lean and fatty cuts of meat?” or “How is meat prepared in different cultures?”

Reflection (5-10 minutes):

After all the presentations, conduct a class-wide discussion. Ask students to reflect on what they learned, what surprised them about meat consumption, and whether their views on meat have changed after learning more about it.

Assessment:

Students will be assessed on:

The accuracy and clarity of their presentation.

The creativity and effort they put into making their presentation engaging.

Their ability to collaborate and communicate effectively with their group members.

Their participation in the class discussion and the quality of their answers to questions.

Case Study Exercise: Managing Meat Production and Quality in Livestock Farming

Scenario: You are a livestock farming consultant working with a large farm, Silver Oak Farms, which produces high-quality beef and pork for local markets. Over the last few months, the farm has been facing challenges in maintaining the consistency of meat quality and carcass yield. The farm raises Angus cattle for beef and Landrace pigs for pork. However, the farm manager, Mrs. Emily Harris, has reported that some of the animals are exhibiting slow growth, poor meat quality, and an increase in carcass fat rather than lean meat. Additionally, there have been concerns about feed efficiency, animal health, and processing costs.

Mrs. Harris is concerned about how these issues could impact the reputation of the farm and its sales, so she has requested your assistance in identifying the possible causes and developing solutions to improve meat quality and farm profitability.

Your Task:

Assessing Slow Growth and Poor Meat Quality:

Mrs. Harris has noticed a slowdown in animal growth rates and a decline in the quality of the meat produced. What are some potential reasons for these issues? Consider factors related to nutrition, genetics, and management practices.

Example:

Slow growth and poor meat quality can be influenced by several factors:

Nutritional imbalances: Insufficient or unbalanced diets, such as inadequate levels of protein, energy, or vitamins (e.g., Vitamin E, which helps with muscle development), can stunt growth and impact meat quality. The animals might not be receiving enough nutrients to build lean muscle mass, leading to excess fat deposition.

Genetic factors: Certain breeds, such as Angus or Landrace, are predisposed to specific growth rates and meat characteristics. If the genetic potential of the animals is not optimized, it may affect both growth and meat quality. Crossbreeding or genetic selection for leaner meat and faster growth could help.

Inadequate feed: The type and quality of feed play a crucial role. Poor-quality forages or low-energy feeds could lead to reduced weight gain and poor meat characteristics, such as excessive fat or insufficient marbling (fat interspersed within muscle).

Health issues: Health problems such as parasite infestations, bacterial infections, or stress-related diseases can negatively affect growth rates and meat quality. Illnesses reduce feed intake, affect nutrient absorption, and can result in poor carcass yield.

Addressing Excess Fat in Carcasses:

One of the issues on the farm is the increase in fat deposition in the carcasses of both cattle and pigs. What are the potential causes of excessive fat accumulation, and what steps can be

taken to reduce fat deposition and improve lean meat production?

Example:

Excessive fat deposition can be due to several factors:

Overfeeding energy-rich feeds: If animals are fed high-energy diets (e.g., excessive grains or concentrated feeds), they may store more fat rather than converting that energy into lean muscle.

Poor genetics: Some animals are genetically predisposed to deposit more fat rather than lean muscle. Using breeding techniques to select animals with higher muscle-to-fat ratios could help mitigate this.

Inadequate exercise: Animals that are kept in confined spaces without enough room to move around may not develop adequate muscle mass. Increasing space and encouraging movement can help improve muscle development.

Feeding practices: Switching from grain-based diets to more fiber-rich diets, like grass or hay, can help promote leaner muscle development. Reducing grain-based feeds towards the final finishing phase can reduce fat deposition and increase muscle mass.

To address fat deposition:

Adjust the feeding regime by reducing the amount of energy-dense feeds in the final stages of growth.

Introduce exercise programs or larger enclosures that encourage movement and natural behaviors.

Use genetic selection to prioritize traits like muscle growth and lower fat accumulation in breeding programs.

Improving Feed Efficiency:

The farm has also noticed a decrease in feed efficiency, meaning animals are consuming more feed but not gaining weight at an

optimal rate. What factors could be affecting feed efficiency, and how can it be improved on Silver Oak Farms?

Example:

Feed efficiency refers to how effectively animals convert feed into body mass. Low feed efficiency could be due to:

Nutrient imbalances: Poorly formulated diets can lead to suboptimal digestion and poor feed conversion. Animals may not be able to absorb all the nutrients in the feed, leading to waste and slower growth.

Health problems: Illness or parasites can reduce feed intake and digestion efficiency, leading to poor growth despite adequate feed.

Feeding practices: Feeding too much at once or feeding animals irregularly can cause digestive issues and reduce efficiency. Offering smaller, more frequent meals can improve digestion and feed conversion.

Breed-specific feed conversion: Different breeds of cattle and pigs have different feed conversion ratios (FCR). For instance, some breeds might be more efficient at converting feed into muscle mass than others.

Environmental stress: Stress due to temperature extremes, overcrowding, or improper housing can reduce feed intake and lower feed efficiency. Improving comfort and minimizing stress can lead to better feed utilization.

To improve feed efficiency:

Review and optimize the feed formulation to ensure it meets the animals' specific nutritional needs.

Improve animal health through regular health checks and parasite control programs.

Adjust feeding schedules and amounts, ensuring animals receive consistent and appropriate rations.

Select genetically efficient animals for breeding purposes to improve feed conversion ratios.

Ensuring Meat Quality at Processing:

As the farm approaches the point of slaughter, ensuring high-quality meat is paramount. What factors should be considered during the handling and processing of livestock to ensure the meat is of the highest quality?

Example:

The handling of animals before slaughter plays a significant role in the quality of the meat:

Stress management: Stress before slaughter can lead to poor meat quality, including dark, firm, and dry (DFD) meat or pale, soft, and exudative (PSE) meat. To reduce stress, ensure that animals are handled calmly, with minimal noise and abrupt movements.

Transportation: Long transport times or overcrowding can cause stress and decrease meat quality. Shorter transport times, proper ventilation, and comfortable conditions should be ensured.

Humane slaughter practices: Ensuring a quick and humane slaughter process can prevent excessive muscle contraction (which impacts tenderness) and ensures the meat has the best texture and flavor.

Carcass chilling: After slaughter, carcasses should be rapidly chilled to prevent bacterial growth and improve the aging process, which enhances tenderness.

Meat aging: After slaughter, the meat should be properly aged to enhance tenderness and flavor. This process can range from a few days to weeks, depending on the desired meat quality.

Sustainable Meat Production:

Mrs. Harris is interested in making Silver Oak Farms more sustainable in terms of meat production. What strategies could be implemented to make the farm more sustainable, both in terms of animal welfare and environmental impact?

Example:

Animal welfare:

Implementing free-range or pasture-based systems can improve animal health and welfare, reducing the need for antibiotics and promoting more natural growth rates.

Providing enrichment activities to reduce boredom and stress in confined spaces.

Environmental sustainability:

Rotational grazing can improve soil quality, reduce overgrazing, and improve forage quality for the animals.

Reducing water usage and implementing water-saving technologies in the farm operations.

Waste management: Utilizing manure as organic fertilizer on the farm reduces waste and enhances crop production. Biogas systems could be installed to convert manure into renewable energy.

Long-Term Strategies for Improving Meat Quality and Farm Profitability:

Mrs. Harris wants to ensure that the farm remains profitable while producing high-quality meat in the long term. What long-term strategies should she consider to enhance productivity, meat quality, and sustainability on the farm?

Example:

Investing in genetic improvement through selective breeding to ensure high-quality, fast-growing animals that produce lean meat.

Developing a brand reputation for high-quality, sustainable, and ethically produced meat can attract premium prices in the market.

Implementing technology and automation in feeding, health monitoring, and processing to improve efficiency and reduce labor costs.

Collaborating with other farms to establish direct-to-consumer sales channels or joining a cooperative to reduce processing costs and increase profits.

Continuing to monitor market trends and consumer demand for specific types of meat (e.g., lean cuts, organic, or grass-fed) to ensure the farm meets market requirements.

Reflection Questions:

How can improving feed efficiency directly impact both meat yield and costs in livestock farming?

Why is stress reduction before slaughter so crucial for meat quality, and how can a farm implement strategies to minimize animal stress?

What role does genetic selection play in improving both growth rates and meat quality, and how can farms ensure they are selecting the right animals for breeding?

HONEY

Honey is a sweet, thick fluid made by bees from flower nectar, a sugar-filled, watery liquid. Worker bees sip nectar from flower blossoms and carry it to their hives. Each bee has a pouch in her body, called a honey stomach, where the nectar is stored. In the pouch, enzymes produced by the bee mix with the nectar. An enzyme is a protein molecule that speeds up chemical reactions. The enzymes in the stomach promote inversion, a process in which the sugar in the nectar breaks down into two simple sugars, fructose and glucose.

After inversion is complete, the bees use their mouth-parts to expose the nectar to the hive's warm air. Some water in the nectar evaporates. The bees then deposit the nectar in a honeycomb, a mass of six-sided compartments called cells. In the cells, water continues to evaporate from the nectar. Nectar becomes honey when it contains less than 19 per cent water.

The color and flavor of honey depend upon the kinds of flowers that supply the nectar. Honey ranges in color from white through dark amber, and it can have a mild or strong flavor. Most honey sold in stores is mild.



The most common honey plants are alfalfa, clover, sunflower, buckwheat, and various wild flowers.

Most honey will eventually granulate because honey is made primarily of sugar and water. Bakers heat honey to delay granulation. Granulated honey may be turned back into liquid by placing a container of honey into warm water.

Honey is an excellent energy food because it contains simple sugars that the body can use quickly. Honey also contains small amounts of minerals and other materials used by the body.

Vocabulary. Learn new words.

enzymes produced by the bee – ферменти, що вироблені бджолою

after inversion is complete – після завершення інверсії

some water – частина води
most honey sold – більша частина меду, що продається
by placing – якщо поставити
used by the body – що потрібні для організму.

TASK 1. Cooperative learning.

Title: "The Sweet Science of Honey"

Objective:

Students will work in small groups to explore different aspects of honey, including its production, health benefits, types, and cultural significance. Through this cooperative activity, students will collaborate to share their findings and present their knowledge to the class.

Materials:

Internet access (or books and other resources)

Paper, markers, and poster boards

Projector (if available) for presentations

Samples of different types of honey (optional)

Index cards for facts

Group Setup:

Divide students into small groups (3-4 members per group).

Assign each group a different aspect of honey to research:

Group 1: How Honey is Made (the process of honey production by bees, from nectar collection to honeycomb storage)

Group 2: Types of Honey (different types of honey, such as clover, manuka, acacia, and wildflower honey)

Group 3: Health Benefits of Honey (nutritional value, medicinal uses, and how honey contributes to health and wellness)

Group 4: Honey in Culture and History (honey's role in different cultures, mythology, and historical uses)

Instructions:

Research Phase (15-20 minutes):

Each group will research their assigned topic using available resources (internet, books, etc.). Encourage students to take notes on important facts, images, and examples that they can include in their presentations.

Collaborative Discussion (10 minutes):

Within each group, students will discuss their findings, organize the key points, and determine how to present their material effectively to the rest of the class. They should decide who will present each part and ensure that all information is shared clearly.

Creative Presentation (15 minutes):

Each group will create a visual presentation to showcase their research. This could include a poster, a PowerPoint presentation, a skit, or even a short demonstration (e.g., showing different types of honey, explaining how honey is made, or discussing the history of honey in a fun way). Be creative!

Presentation Time (10-15 minutes per group):

Each group will present their findings to the class. Encourage students to ask questions at the end of each presentation. Questions can include things like, “What are the differences between types of honey?” or “Why is honey considered a superfood?”

Reflection (5-10 minutes):

After the presentations, engage the class in a short discussion. Ask them what they found most interesting about honey, and if their views on honey or its uses have changed after learning more. Discuss any fun facts or surprising information.

Assessment:

Students will be assessed on:

The clarity and accuracy of their presentation.

The creativity and effort they put into making their presentation engaging and informative.

Their participation in the group discussion and collaboration process.

Their ability to answer questions and explain their topic clearly to others.

FAT

Fat is one of three main classes of nutrients that provide energy to the body. The others are carbohydrates and proteins.



Fats are found in animals and plants. They are composed of carbon, hydrogen, and oxygen.

An animal fat that is liquid at room temperature is called an oil. Fats and oils are insoluble in water, but they can be dissolved in alcohols, chloroform, ether, and gasoline. Beef

tallow and some other fats are hard at room temperature. Such fats as butter, lard, and margarine, are soft at room temperature.

Fat has many important uses. It is a source of energy for animals and plants. Fat is stored under the surface of the skin of many kinds of animals, including human beings. These fat deposits act as insulation against heat loss. Deposits of fat around the eyeballs and other organs of animals serve as cushions against injury.

Fat is an important energy source in the diet and is a more efficient fuel than carbohydrates or proteins. It can produce 9 calories of energy per gram. Fat is the body's most efficient form of stored fuel. The body can store fat that is almost dry, but large amounts of water are necessary to store carbohydrates and proteins. The body converts carbohydrates and proteins into fatty tissue for storage. When extra fuel is needed, the body draws on this stored fat.

Fats are composed of substances called fatty acids, and an alcohol called glycerol. Certain fatty acids, known as essential fatty acids, are necessary for the growth and maintenance of the body. The body cannot manufacture essential fatty acids, and so they must be included in the diet.

Vocabulary. Learn new words.

including human beings – а також людей

per gram – на один грам

for storage – як запас

the body draws on – організм використовує

and so – і тому

TASK 1. Cooperative learning.

Cooperative Learning Exercise: "Fats in Our Diet"

Objective:

Students will work together to research different types of fats, their functions, and their health effects. By the end of the activity, they will create a comprehensive guide on fats that includes both positive and negative aspects and share it with the class.

Materials Needed:

Chart paper or poster boards

Markers

Access to the internet or textbooks for research

Handouts with a brief introduction to fats (optional)

Groups:

Divide the class into 4-5 small groups of 3-4 students each.

Steps for the Activity:

Introduction to Fats (5-10 minutes):

Give a brief introduction to the topic of fats, explaining the difference between types (saturated, unsaturated, and trans fats) and their roles in the body.

Explain that fats are an essential part of the diet but must be consumed in moderation. Emphasize that some fats are healthier than others.

Research Phase (20-25 minutes):

Assign each group a specific type of fat to research. They can focus on:

Group 1: Saturated Fats (sources, benefits, health risks)

Group 2: Unsaturated Fats (sources, benefits, health effects)

Group 3: Trans Fats (sources, negative health impact, alternatives)

Group 4: The role of fats in energy, hormone production, and brain function

Students should research and take notes on their assigned topic. They will then create a visual presentation (a poster, chart, or infographic) that summarizes their findings.

Creating the Presentation (15-20 minutes):

Each group creates a poster or infographic summarizing their findings on their specific type of fat. The visual should include:

A brief description of the type of fat.

Examples of food sources.

Health effects (both positive and negative).

Recommendations for consumption (how much is healthy?).

Encourage creativity! Posters should be colorful and easy to understand for a general audience.

Presentation (5-7 minutes per group):

Each group will present their poster to the class, explaining the key points and answering questions from their peers.

Class Discussion (10 minutes):

After all the groups have presented, facilitate a class discussion.

Discuss the following questions:

Which type of fat seems to have the greatest health benefits?

How can we make healthier fat choices in our daily diets?

How do fats impact energy levels and overall health?

Reflection (5-10 minutes):

Ask each student to reflect individually in their notebooks. Have them write a short paragraph answering the following:

What did you learn about fats from the group presentations?

What type of fat do you think is the healthiest to include in your diet? Why?

After this lesson, how will you change your eating habits, if at all?

Assessment:

Evaluate each group's poster or infographic for clarity, accuracy, and creativity.

Assess individual reflections for understanding of key concepts and their ability to apply what they learned.

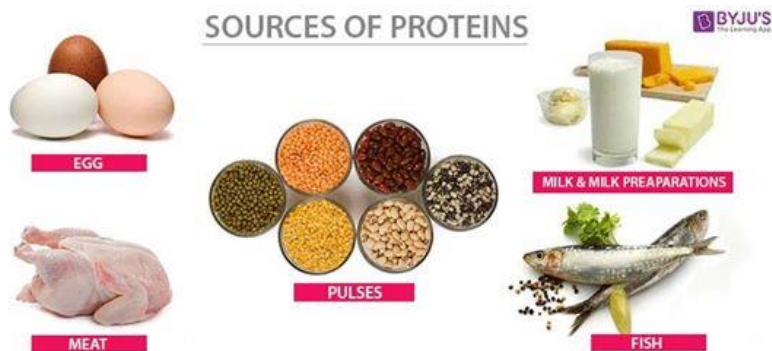
Extension Ideas:

For homework, students can create a weekly meal plan that includes healthy fat sources, explaining the benefits of each type.

In a follow-up lesson, students could discuss the impact of fat intake on specific health issues like heart disease or weight management.

PROTEIN

Protein is one of the three main classes of food that provide energy to the body. The others are carbohydrates and fats. Proteins exist in every cell and are essential to plant and



animal life. Plants build proteins from minerals in the air and the soil. Human beings and animals obtain protein from foods. Foods high in protein include cheese, eggs, fish, meat, and milk.

All proteins contain carbon, hydrogen, nitrogen, and oxygen. Some proteins also contain iron, phosphorus, and sulphur. Proteins are large, complex molecules made up of smaller units called amino acids. The amino acids are linked

together into long chains called polypeptides. A protein consists of one or more polypeptide chains.

Twenty common amino acids are combined into the thousands of different proteins required by the human body. Nine of them, called essential amino acids, cannot be produced by the body. Therefore, they must be supplied by various foods. The remaining amino acids, called non-essential amino acids, can be made by the body in sufficient amounts.

The best source of proteins are cheese, eggs, fish, meat, and milk. The proteins in these foods are called complete proteins because they contain adequate amounts of all the essential amino acids. Cereal grains, legumes, nuts, and vegetables also supply proteins. These proteins are called incomplete proteins because they lack adequate amounts of one or more of the essential amino acids.

Insufficient protein in the diet may cause lack of energy, stunted growth, and lowered resistance to disease.

Vocabulary. Learn new words

foods high in – продукти, котрі багаті на

some proteins – деякі білки

in sufficient amounts – у достатній кількості

they lack adequate – вони не мають достатньої

incomplete proteins – неповноцінні білки

insufficient protein – неповноцінний білок

TASK 1. Cooperative learning.

Cooperative Learning Exercise: "The Power of Protein"

Objective:

Students will collaborate to explore the different types of proteins, their functions, and their sources. By the end of the activity, they will create informative and creative resources that educate others about the importance of protein in the diet.

Materials Needed:

Chart paper or poster boards

Markers, colored pens, or pencils

Access to the internet or textbooks for research

Handouts with basic protein information (optional)

Groups:

Divide the class into 4-5 small groups of 3-4 students each.

Steps for the Activity:

Introduction to Proteins (5-10 minutes):

Begin with a short introduction to proteins, explaining their role in the body (growth, repair of tissues, immune system support, and energy).

Discuss the difference between complete and incomplete proteins and the concept of essential and non-essential amino acids.

Mention sources of protein (animal-based and plant-based) and the importance of a balanced intake.

Research Phase (20-25 minutes):

Assign each group a specific aspect of protein to research. They should focus on the following topics:

Group 1: Complete Proteins (sources, benefits, and examples)

Group 2: Incomplete Proteins (sources, how to combine plant-based proteins to make complete proteins)

Group 3: Animal-Based Proteins (sources, benefits, potential health concerns)

Group 4: Plant-Based Proteins (sources, benefits, environmental and health impact)

Students should use the internet or textbooks to gather information on their assigned topic. Encourage them to focus on

finding a variety of sources, including food examples, nutritional benefits, and any potential dietary considerations.

Creating the Presentation (15-20 minutes):

After researching, each group will create a visual presentation (a poster, chart, or infographic) summarizing their findings. The visual should include:

A description of the type of protein (complete, incomplete, animal-based, or plant-based).

Food sources that are high in this type of protein.

Nutritional benefits and why protein is important for health.

Any dietary considerations (e.g., vegetarians, people with allergies, etc.).

Fun facts, myths, or common misconceptions about protein.

Posters should be colorful, clear, and easy to understand for a general audience. The groups should also write a short, one-sentence summary of what they want their peers to remember about their topic.

Presentation (5-7 minutes per group):

Each group will present their poster or infographic to the class, explaining their findings and answering questions from their peers. Encourage students to use visuals and real-life examples to make their presentations engaging.

Class Discussion (10 minutes):

After all the groups have presented, facilitate a class discussion.

Use the following questions to guide the conversation:

What are the key differences between complete and incomplete proteins?

How can we make sure we're getting enough protein in our diets?

Can vegetarians and vegans get enough protein? How?

Why is it important to balance animal-based and plant-based protein sources?

What are some creative ways to add more protein to meals?

Reflection (5-10 minutes):

Have students write a short reflection individually. Ask them to respond to the following prompts:

What new information did you learn about protein during the presentations?

How can you apply this knowledge to your own eating habits?

After this lesson, will you consider making any changes to your diet or food choices? Why or why not?

Assessment:

Evaluate each group's poster or infographic for clarity, creativity, and accuracy.

Assess individual reflections to ensure understanding and application of the material.

Optionally, give a short quiz or ask follow-up questions to assess students' grasp of protein-related concepts.

Extension Ideas:

As a homework assignment, students can create a week-long meal plan that incorporates healthy protein sources, ensuring balance between animal-based and plant-based proteins.

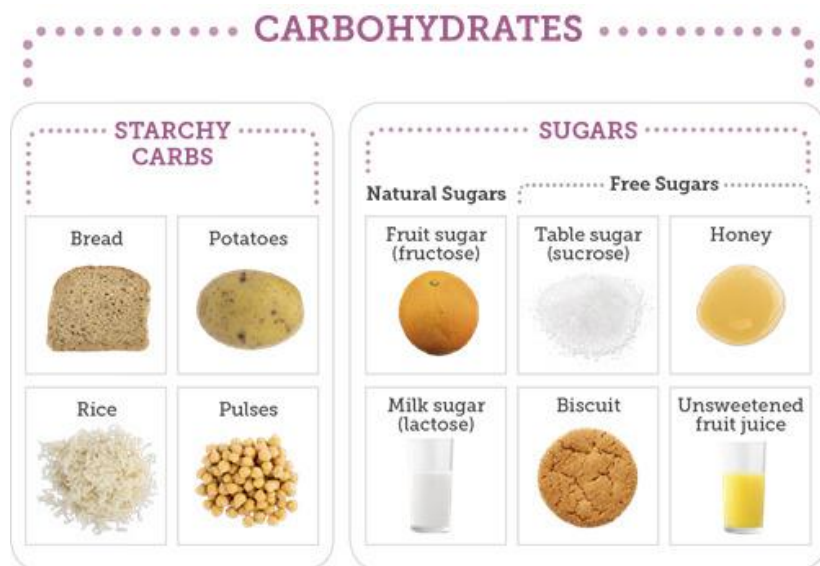
In a future lesson, students could investigate how protein needs vary for different age groups, athletes, and people with medical conditions.

CARBOHYDRATES

Carbohydrates are a term applied to a group of substances which includes sugars, starches, cellulose and many other related substances. This group of compounds plays a vitally important part in the lives of plants and animals, both as

structural elements and in the maintenance of financial activity. All the carbohydrates contain the same elements: carbon, hydrogen, and oxygen. The carbohydrates as a group are comparable in importance with proteins and fats.

Cane and beet sugars, glucose, fructose, starch, and cellulose are typical representatives. The group of carbohydrates is very numerous. The properties of its representatives differ enormously from one substance to another. The sugars, such as



glucose or sucrose, are easily soluble, sweet-tasting and crystalline. The starches are colloidal and paste-forming. Cellulose is completely insoluble. Yet chemical analysis shows that they have a common basis. The starches and cellulose may be degraded by different methods to the same crystalline sugar, glucose. Among the undertakings dependant on carbohydrate materials are cotton industry, certain branches of explosives, brewing, and alcohol manufacture.

Vocabulary. Learn new words

starch	крохмаль
cellulose	целюлоза
related substances	споріднені речовини
vitally important	життєво важливий
maintenance	підтримка
functional activity	функціональна активність
comparable	що порівнюється
cane sugar	тростинний цукор
beet sugar	буряковий цукор
glucose	глюкоза
fructose	фруктоза
representative	представник
to differ	відрізнятися
sucrose	цукроза
sweet-tasting	солодкий на смак
crystalline	кристалічний
colloidal	колоїдний
paste-forming	що утворює клейстер
insoluble	нерозчинний
dependant on	залежний від
cotton	бавовна
brewing	пивоваріння
manufacture	виробництво

TASK 1. Cooperative learning.

Cooperative Learning Exercise: "Carbohydrates: Fueling Our Bodies"

Objective:

Students will work together to investigate the different types of carbohydrates, their functions in the body, and their sources. They

will create a collaborative educational tool to share with the class that highlights the role of carbohydrates in a healthy diet.

Materials Needed:

Chart paper or poster boards

Markers, colored pens, or pencils

Access to the internet or textbooks for research

Handouts with basic carbohydrate information (optional)

Groups:

Divide the class into 4-5 small groups of 3-4 students each.

Steps for the Activity:

Introduction to Carbohydrates (5-10 minutes):

Start by introducing the concept of carbohydrates, explaining their role in providing energy for the body.

Discuss the difference between simple carbohydrates (sugars) and complex carbohydrates (starches and fiber).

Explain how carbohydrates are broken down into glucose and used by the body, and why they are an essential part of a balanced diet.

Touch on topics like the glycemic index and how some carbs can affect blood sugar levels.

Research Phase (20-25 minutes):

Assign each group a specific aspect of carbohydrates to research. They will focus on the following topics:

Group 1: Simple Carbohydrates (sources, functions, and effects on health)

Group 2: Complex Carbohydrates (sources, health benefits, and digestion)

Group 3: Fiber (types of fiber, health benefits, and sources)

Group 4: The Role of Carbohydrates in Energy (how the body uses carbs for energy, importance of carbs in sports, and how to maintain balanced carb intake)

Encourage students to gather a variety of information, including food examples, nutritional benefits, and health considerations.

Creating the Presentation (15-20 minutes):

Each group will create a visual presentation (a poster, chart, or infographic) that summarizes their findings. The presentation should include:

A description of the type of carbohydrate.

Examples of food sources rich in this carbohydrate.

Benefits and any health considerations.

Fun facts or myths about carbohydrates.

How their type of carbohydrate contributes to overall health and energy.

Encourage creativity! Make sure the posters are clear, visually appealing, and easy to understand for a general audience.

Presentation (5-7 minutes per group):

Each group will present their poster to the class, explaining what they learned and answering any questions from their peers. This is a chance for students to communicate their findings effectively and share knowledge with the class.

Class Discussion (10 minutes):

After the presentations, lead a class discussion using the following questions:

What is the difference between simple and complex carbohydrates? How does this affect the body?

Why is fiber an important part of a healthy diet?

How can we balance our carbohydrate intake for energy and health?

What are some foods we should prioritize for a healthy carbohydrate intake?

How do carbohydrates impact athletic performance and recovery?

Reflection (5-10 minutes):

Ask each student to write a brief reflection on what they learned during the exercise. Have them answer the following prompts:

What new information did you learn about carbohydrates from the group presentations?

Do you think you consume the right types of carbohydrates in your diet? Why or why not?

After this lesson, will you consider making any changes to the way you choose or eat carbohydrates? If so, how?

Assessment:

Evaluate each group's poster for clarity, creativity, and accuracy of information.

Assess individual reflections for understanding of key concepts and their ability to apply what they learned.

Optionally, have students take a short quiz or provide follow-up questions on carbohydrates to assess retention.

Extension Ideas:

For homework, students could create a balanced meal plan that includes healthy carbohydrate choices, ensuring that both simple and complex carbohydrates are represented appropriately.

You could also have students track their carbohydrate intake for a week and analyze if they are meeting their daily needs or over-consuming unhealthy sources.

АНГЛО-УКРАЇНСЬКИЙ СЛОВНИК

А

abbey n	абатство, монастир
abdomen n	зобик (медовий)
ability n	здатність, уміння
abomasum n	сичуг
about	приблизно, майже
abrasion n	тертя; садно
absorb v	усмоктувати
absorption n	усмоктування
academic	навчальний
academy n	академія
acid n	кислота
acquire v	набувати
activate v	активувати
acupuncture n	голкотерапія
acute adj	гострий
add v	додавати
addition n	додаток
administer v	здійснювати
adopt v	приймати
adult adj	дорослий
affect v	впливати; уражати
affection n	вплив; ураження
afflict v	уражати
after-birth n	послід, плацента
agent n	фактор, чинник
agricultural	сільськогосподар-

air raids pl	повітряні нальоти
airway n	авіалінія
alert v	насторожувати
alfalfa n	люцерна
alga n	морська водорість
alimentary tract	травний тракт
alveoli n	рІ від
alveolus n	альвеола
amber n	бурштин
amino acids pl	амінокислоти
amount n	кількість
anaemia n	анемія
anaerobe n	анаероб
anatomical adj	анатомічний
Anatomy n	анатомія
ancient	давній
anesthesia n	анестезія
animal shelter	притулок для тварин
anorexia n	анорексія
anthem n	гімн
anthrax n	сибірка, антракс
appearance n	вигляд
approach v	наближатись
aquatic adj	водний, водяний
architectural adj	архітектурний
arms pl	герб
arthritic adj	артричний

article n	стаття
artificially adv	штучно
artist n	художник
aspiration n	дихання
assign v	призначати
assist v	допомагати
associate v	пов'язувати
assumption n	припущення
attend v	відвідувати
attract v	приваблювати
auscultation n	вислуховання
available adj	наявний; придатний
average v	в середньому до- рівнювати

В

bacillus	бацила, паличка
bacilli	рl від bacillus
backbone n	спинний хребет
bacterial adj	бактеріальний
bacterium n	бактерія
bacteria pl	рl від bacterium
basking-shark n	гігантська акула
bass n	морський окунь
bat n	кажан
be fond of	любити (щось)
beak n	дзьоб
bear v	носити

beat v	збивати
bee n	бджола
beef cattle n	м'ясна худоба
beef cow n	м'ясна корова
beef n	яловичина
behavior n	поведінка
believe v	вірити, думати
belong to v	належати
bichirs pl	біхіри (риби)
bile n	жовч
bite off v	відкушувати
blend with v	зливатися
blood n	кров
blossom n	цвіт
body n	тіло, організм
bone n	кістка
bony	костистий
Botany n	ботаніка
bottom n	дно
botulism n	ботулізм
bovine adj	коров'ячий, бичачий
brain n	мозок
break down v	розщеплювати
break n	перерва
breathe v	дихати
breed n	порода
breed v	розводити
breeding n	розведення

bronchi pl	бронхи
bronchoalveolar adj	бронхоальвеолярний
brucellosis n	бруцельоз
buckweat n	гречка
bulk n	об'єм
bull n	бугай
burning n	спалювання
butcher n	м'ясник
buttermilk n	маслянка
by-products pl	побічні продукти

С

cage v	клітка
canine adj	собачий
calf n	теля, телятина
camel n	верблюд
canteen n	їдальня
capacity n	місткість
carbohydrates pl	вуглеводи
carbon n	вуглець
cardiovascular adj	серцево-судинний
care (for) v	турбуватися про
carnivore n	м'ясоїдна тварина
carnivorous adj	м'ясоїдний
carriage n	перевезення, екі- паж
carry out v	виконувати
cartilage n	хрящ

case n	випадок
castrated	кастрований
catfish n	звичайна зубатка
catgut n	кетгут
cattle n	худоба
cattle plague n	чума ВРХ
causal adj	хвороботворний
causation n	спричинення
cause n	причина
cave n	печера
cell n	комірка; клітина
cereal	злаковий, хлібний
chair n	крісло, кафедра
channel n	канал
charity n	благдійність
chemical adj	хімічний
chemicals pl	хімічні препарати
Chemistry n	хімія
chest n	грудна клітка
chew a cud	жувати жуйку
chew v	жувати
chiefly adv	головним чином
chimaera n	химера (риби)
chinchilla n	шиншила
chiropractic n	підрізання кігтів
chitterlings pl	тельбухи
cholesterol	холестерин
chop n	м'ясо на котлети

Christmas n	Різдво
chronic adj	хронічний
churn v	збивати (масло)
circle n	гурток
circulatory	циркулюючий
claim n	скарга
classes pl	заняття (пара)
claw n	лапа з кігтями
clinic n	клініка
clover n	конюшина
coat n	покрив
cod n	тріска (риба)
coelacanth pl	целаканти (риби)
cold-blooded	холоднокровний
collapse v	руйнуватися
collect v	збирати
college n	коледж
coloration n	забарвлення
colostrum n	молозиво
combat v	побороти
combine v	поєднувати
common	загальний
compartment n	відділ (шлунку)
complain v	скаржитись
complete	завершувати;
	проводити
complex adj	складний
complication n	ускладнення

compose v	складати
composition n	склад, структура
compound a	сполука
concern n	стурбованість
condemnation n	осуд
condition n	умова
connective tissue n	сполучна тканина
consider	вважати
consideration n	увага; <i>тут:</i> ставлення
consist in v	полягати у
consist of v	складатися з
consume v	споживати
consumption n	споживання
contagious adj	заразний
contain v	містити
contaminate v	забруднювати; заражати
content n	вміст
contribute to v	сприяти
convert v	перетворювати
convulsion n	конвульсія
copper n	мідь
cough v	кашляти
county n	графство
cover v	охоплювати
covering n	покрив
cow n	корова

crack n	тріщина
cracker n	сухе печиво
cream n	вершки
creamery n	маслоробня
credit test n	залік
crepuscular adj	присмерковий
crop n	культура (зерно)
crossbread	гібридний
crossbreed n	гібрид
crossing n	схрещування
crowd n	натовп
cruelty n	жорстокість
ctenoid adj	ктеноїдний
cud n	жуйка
cure v	засолювати
curve v	вигинатися
cushion n	подушка
cut n	відруб (м'яса)
cut v	кусати, різати
cutting teeth	різці
cut off	обрізувати
cyanosis n	ціаноз, синюха
cytologic adj	цитологічний

D

dairy	молочний, дійний
dairy cattle n	молочна худоба
dairy cow n	молочна корова

dairy n	молочарня
dairy products	молочні продукти
damage n	пошкодження
damage v	пошкоджувати
dangerous	небезпечний
dead	мертвий
dean n	декан
decrease v	зменшувати
deep adj	глибокий
deer n	олень
defence n	захист
defend v	захищати
deficiency n	недостатня кількість
definitive adj	остаточний; цілком розвинений
dehorn v	обрізати роги
delay v	затримка, затри- мувати
demonstrate v	показувати
deposit v	відкладати
descend v	походити
desert	пустинний
deserve v	заслужувати
desiccation n	висушування
destroy v	знищувати, руйнувати
detect v	виявляти
detection n	виявлення

determine v	визначити
devastation n	спустошення
develop v	виводити (породу)
die out v	вимирати
digest v	перетравлювати
digestible adj	легкотравний
digestion n	травлення
digestive adj	травний
direction n	напря́м
discharge n	виділення
discover v	відкривати, вияв- ляти
discourage v	<i>тут:</i> перешкоджати
disease n	хвороба
disorder n	безлад
dispensary n	безкоштовна амбулаторія
diseased adj	хворий
dissolve v	розчиняти
distemper n	собача чума
distinguish v	відрізняти
distribute v	поширювати
divide v	поділяти
division n	<i>тут:</i> факультет, відділ
docile adj	слухняний
domestic adj	домашній
domesticate v	приручати

donkey n	осел
dormant adj	сплячий
draft n	тягло
draw on v	добувати
dress v	одягатися
drone n	трутень
droopy adj (ears)	висячий
drop n	крапля
droplet n	крапля
dry adj	<i>тут:</i> холодний
dry v	сушити
duck n	качка
duct n	протока
dumb adj	німий
during	протягом
duty n	обов'язок

Е

ecology n	екологія
eczema n	екзема
edge n	край
edible adj	їстівний
education n	освіта, навчання
eel n	вугор
efficient	ефективний
Еgypt n	Єгипет
elect v	обирати, вибирати
emaciation n	виснаження

embryo n	зародок
emerge v	з'являтися
empire n	імперія
employee n	службовець
enable v	давати можливість
enemy n	ворог
enormous	величезний
enter v	вступати (до)
entirely	цілком, зовсім
environment n	середовище, оточення
enzyme n	фермент, ензим
eosinophilia n	еозинофілія
epizootics v	епізоотія
equipment n	обладнання
eradicate v	викорінювати
erect adj	піднятий
escape v	врятуватися
esophagus n	стравохід
essential adj	дуже важливий, незамінний
estimate v	оцінювати
ether n	ефір
evaporate v	випаровувати
evaporation n	випаровування
evident adj	очевидний
ewe n	вівцематка
except v	за винятком, крім

excitation n	збудження
excrete v	виділяти
exemption n	звільнення
exercise n	прогулянка; <i>тут:</i> фізичне зусилля
exhale v	видихати
exhibit v	виставляти
exist v	існувати, бути
expel v	виганяти; викидати
explorer n	дослідник
expose to v	піддавати дії
exposure n	виставляння; піддпвання
extracellular adj	позаклітиний
extra-mural adj	заочний
extremely adv	надзвичайно
eyeball n	очне яблуко
eyelid n	повіка

F

facultative adj	факультативний
faculty n	факультет
faint adj	слабкий
fair n	ярмарок
farm animals pl	сільськогосподарські тварини
farrier n	коновал
fasciolosis n	фасциольоз

fat n	жир, товщ
fatty acids pl	жирні кислоти
feather n	пір'я
feature n	риси, ознака
feeble	кволий
feed n	корм
feed v	годувати
feed on v	живитися
felid n	тварина з родини
	котячих
feline n	котячий
female n	самка
feral adj (cat)	дикий, неприручений
fern n	папороть
fertilizer n	міндобриво
fever n	гарячка
fin n	плавець
flavour n	приємний смак
flesh n	м'ясо, плоть
flexible	гнучкий
flour n	борошно
flow v	текти
fluctuate v	коливатися
fluid n	рідина
flying fish n	літаюча риба
for	для
foreign	іноземний
former	колишній

fossil adj	скам'янілий
found v	засновувати
fountain n	фонтан, водограй
French n	французька мова
frequency n	частота
frequently	часто
freshwater adj	прісноводний
front adj	передній
frozen	заморожений
fry v	смажити
fuel n	паливо, пальне
full-time depart- ment n	денне відділення
fun n	забава
fungus n	гриб, грибок
fungi pl	пл від fungus
furnish v	постачати
furry adj	хутряний
fury n	лють

G

gallbladder n	жовчний міхур
game n	дичина (м'ясо)
gain v	здобувати
gasoline n	бензин (<i>амер.</i>)
genera pl	пл від genus
genus n	рід
gestation n	вагітність

giant manta ray n

gills pl

give birth v

gland n

globule n

glorious

glycogen n

goat n

goby n

God n

govern v

government n

graduate from

grain n

graze v

grow v

growl v

growth n

grunt v

guard v

hagfishes pl

ham n

handicapped adj

harmless

harsh adj

скат морський

диявол

зябри

народити

залоза

кулька

славетний

глюкоген

коза

бичок (риба)

Бог

правити, керувати

уряд

закінчувати

зерно

пасти(ся)

вирощувати, рости

гарчати

наріст, ріст

рохкати

стерегти

Н

міксини (риби)

шинка, окіст

що має фізичні вади

нешкідливий

жорсткий

hatch v	вилуплюватися з яйця, виводити
hay n	сіно
headache n	головний біль
healing herb	цілюща трава
health n	здоров'я
healthy	здоровий
heat v	нагрівати
heifer n	телиця, ялівка
helminth adj	глист
hen n	курка
hepatitis n	гепатит
herbivorous adj	травоїдний
herd n	стадо
herder n	пастух
herring n	оселедець
hide n	шкіра
hide v	ховати(ся)
hind adj	задній
hiss v	шипіти
hive n	вулик
hog n	свиня
hollow adj	порожнистий
homeopathy n	гомеопатія
honey βεε v	медоносна бджола
honey v	мед
honeycomb n	стільники (медові)
hoof n	копито, ратиця

horn n
hornless adj
horseshoeing n
horse shows pl
horseshoe n
host n
household αδφ
human being n
human n
humane adj
humid adj
humped cattle
hunter n
hybrid n
hydrogen n
hypertrophy n

ріг
нешкідливий
підковування коней
виставка коней
підкова
хазяїн
домашній
людська істота
людина
людяний
вологий
горбата худоба
мисливець
гібрид
водень
гіпертрофія

I

ichthyologist n
impact n
improved adj
incidence n
incipient adj

income n
increased stipend
independence n

іхтіолог
вплив
удосконалений
охоплення
початковий; що
зароджується
прибуток
підвищена стипендія
незалежність

indicate v	вказувати
induration n	затвердіння
industrial adj	промисловий
infectious adj	інфекційний
inflammation n	запалення
ingestion n	приймання їжі
ingredient n	складник
inhale v	вдихати
injury n	пошкодження
initial adj	початковий
inoculation n	посів (мікробів)
insect n	комаха
insoluble adj	нерозчинний
inspect ∞	оглядати
insulation n	ізоляція
intake n	споживання
integument n	зовнішній покрив
intermediate adj	проміжний
intestinal adj	кишковий
intestine n	кишечник, кишка
intracellular adj	внутрішньо- клітинний
invade v	<i>тут:</i> уражати
invasion n	навала, вторгнення
invertebrate adj	безхребетний
investigation n	дослідження
involve v	<i>тут:</i> залучати
iodine n	йод

iron horse n

“залізний кінь”

(поїзд)

iron n

залізо

J

jaw n

щелепа

jawed

щелепний

jawless

безщелепний

joint adj

суглоб

jungle n

джунглі, нетрі

K

keen adj

гострий (зір)

kidney n

нирка

kill v

убивати, різати

(худобу)

kind n

вид

L

laboratory n

лабораторія

lack v

не мати

lactation n

лактація

lamb n

ягня, баранина

lampreys pl

міноги (риби)

language n

мова

lard n

сало, смалець

larva n

личинка

last for v

тривати

lavage n

промивання

law n	закон, право
laxative adj	проносний
lay eggs	відкладати яйця
lead v	керувати
leader n	лідер, керівник
lean	пісний
leather n	шкіра (вичинена)
leave for v	покидати, від'їжджати
lecture n	лекція
lecture-hall	аудиторія
leg n	задня гомілка, нога
legumes pl	бобові
lesion n	ушкодження
lethal adj	смертельний
lethargy n	млявість; ступор
leucocytosis v	лейкоцитоз
line v	вистилати
lineage n	родовід
link v	з'єднувати, сполучати
liquid n, adj	рідина, рідкий
live on v	живитися
liver n	печінка
livestock n	домашня худоба
llama n	лама
load n	тягар, вантаж
location n	розташування

loss n
lung n
lungfishes pl
lymph duct n

втрата
легеня
двомякодихаючі риби
лімфатичний прохід

М

mainly
maintain v
major adj
make up v
male n
malnutrition n
mammal n
management n
manganese n
manifestation n
marketing n
master v
mastitis n
mate v
mating n
mature v, adj
means pl
measure v

meat n
medication n
medicine n

головним чином
підтримувати
головний
тут.: складати
самець
недоїдання
ссавець
менеджмент
марганець
прояв
маркетинг
опановувати
мастит
спаровувати(ся)
парування
дозрівати, дозрілий
засоби
визначати, мати
розміри
м'ясо
лікування
ліки

meeting n	<i>тут</i> : засідання
metabolic adj	що стосується обміну речовин
mew v	нявчати
mile n	миля (1609 м)
military	військовий, воєнний
milk v	доїти
mink n	норка
minnow n	мілька (риба)
mix v	змішувати
moisture n	волога
molar n	кутній зуб
morning exercises pl	ранкова гімнастика
mouth-parts pl	ротові придатки
move v	рухатися
movement n	рух
mucus n	слиз
mucous adj	слизовий
mud n	бруд, bagno
mule n	мул
multiply v	розмножуватися
muscle n	м'яз
muscular adj	м'язовий
mutton n	баранина

N

namely	a same
--------	--------

narrow	вузький
nasal adj	носовий
national adj	національний
National emblem n	державний герб
native adj	рідний
nearly	майже
neck n	шия
need v	потребувати
needle-fish n	голка-риба
nephew n	племінник
nephritis n	нефрит
nerve n	нерв
nickname n	прізвисько
nitrogen n	азот
node n	вузол
non-essential adj	замінний
non-motile adj	нерухомий
northwestern adj	північно-західний
nostril n	ніздря
note v	помічати
noticeable adj	помітний
nourish v	годувати
now	тепер, зараз
numbness n	нечутливість
nut n	горіх
nutrients pl	поживні речовини
nutritional adj	харчовий
nutritive adj	поживний

O

obey v
observe v
obtain v
occupation n
occupy v
occur v
odour n
offspring n
omasum n
order n
ordinary stipend
originate v
orthopedics n
osteopathy n
outbreak n
outward adφ
overcome v
oxygen n

виконувати
помічати
одержувати
заняття
займати
траплятися
запах
нащадок
книжка
ряд
звичайна стипендія
походити
ортопедія
остеопатія
спалах
зовнішній
подолати
кисень

P

packaging n
pain n
pancreas n
parasitic adj
parliament n
paroxysmal adj
particle n

фасування
біль
підшлункова залоза
паразитичний
парламент
судорожний
частинка

pass v	проходити
pasteurization n	пастеризація
pasture n	пасовище
pattern n	візерунок
pavement n	тротуар
pearl n	перлина
pedigree adj	родовід
perch n	окунь
percussion n	вистукування
perform v	<i>тут:</i> виступати
pericarditis n	перикардит
persist v	зберігатися
pest n	шкідник
pet n	домашній
	улюбленець
pharynx n	зів
phylum n	тип
physician n	лікар
pink	блідо-рожевий
pleuritis n	плеврит
plow n	плуг
pneumonia n	пневмонія
poisoning n	отруєння
poisonous adj	отруйний
political adj	політичний
polled adj	безрогий, шутий
pollen n	пилек
pollinate v	запилювати

porcupine fish n	дикобраз (риба)
pork n	свинина
pork chop	свиняча відбивна
potassium n	калій
pouch n	мішечок, кошик
poultry n	свійська птиця
pound n	фунт = lb (453,6 г)
predator n	хижак
predatory adj	хижацький
predispose (to) v	схиляти до
prehistoric adj	доісторичний
prescribe v	призначати
prevent v	відвертати, запобігати
prevention n	профілактика
preventive adj	запобіжний
previous adj	попередній
prey n	жертва
primary n	перший; початковий
principal adj	основний
print n	<i>тут:</i> брикет
privacy n	самотність
produce v	виробляти
produce v	<i>тут:</i> дати (світові)
product n	виробляти
profuse adj	рясний
promote v	сприяти
propel v	рухати, штовхати

property n
prophylaxis n
protect v
protection n
protective
protein n
provide v

pull v
pulmonary adj
pupa n
purpose n
purr v
pursue v

quality n
quantity n
queen n
queen n

rabies n
races pl
raise v
ram n
rage n
range n
range v

власність
профілактика
захищати
захист, охорона
захисний
білок, протеїн
постачати,
забезпечувати
тягти
легеневий
лялечка
намір, мета
муркотати
продовжувати

Q

якість
кількість
матка (бджола)
королева

R

сказ
гонки
вирощувати
баран
лють
ряд, низка
коливатися в межах

rank n	ряд
rate n	<i>тут:</i> ступінь
raw adj	сирий
raw materials pl	сировина
ray n	1. скат (риба), 2. промінь
rayed	променевий
razor fish n	двійчастий молюск
recent adj	недавній
recognize v	упізнавати; усвідомлювати
recreation n	розвага
reduce v	зменшувати
reduction n	зниження
refer to ∞	посилатися на
referable adj	пояснимий
reflect v	відбивати
refractory adj	невиліковний
refrigerate v	охолоджувати
regain v	одержувати назад
regularly adv	регулярно
reindeer n	олень
relatively adv	відносно
remain v	залишатися
remains pl	рештки
remedy n	лікувальний засіб
rename v	перейменувати
replace v	заміняти

report n	доповідь
reproduce v	розмножуватися
reproduction n	розмноження
reproductive adj	відтворювальний
require v	вимагати
research n	дослідження
resemble v	бути схожим на
residue n	осад; шлам
resistance n	опір(ність)
resistant adj	стійкий
resort n	курорт
respiratory adj	дихальний
respond v	відповідати
response n	відповідь
restless adj	непокоїний
result from v	виникати внаслідок
retail trade n	торгівля на роздріб
retain ⚭	утримувати
reticulum n	сітка
retractable adj	що ховається (складається)
return v	повертатися
reveal v	виявити
rickets n	рахіт
ride v	їхати верхи
right n	право
rival n	суперник
roast n	м'ясо на печеню

rock n
roll about v
root n
roughage n
royal adj
royal jelly n
run v
rumen n
ruminant adj
ruminant n

скеля, камінь
тут: заривати
корінь
грубий корм
королівський
„молочко”
тут: керувати
рубець
жуйний
жуйна тварина

S

sailfish n
safety n
sale n
saliva n
salivary adj
sanitary adj
sanitation n
sauce n
sausage n
save v
scale n
scavenger n

scent n
scholar n
school n

парусник (риба)
безпека
продаж
слина
слинний
санітарний
санітарія
соус
ковбаса
берегти
луска
тварина, що жи-
виться падлом
запах
учень, вчений
школа, косяк (риби)

schoolgirl n	школярка
scientific adj	науковий
scientist n	вчений
scorpion-fish n	скорпіон (риба)
scout n	<i>тут:</i> розвідниця
sea-horse n	морський коник
seal v	герметично закривати
seaport n	морський порт, портове місто
secondary adj	другорядний
secondary school n	середня школа
security n	безпека
selective αδφ	селективний
self-criticism n	самокритика
self-defence n	самооборона
semen n	сім'я, сперма
sense (of smell) n	відчуття
sensitivity n	чутливість
separate v	відділяти
separately adv	окремо
separation n	відокремлення
serum n	сироватка
serve v	слугувати
session n	сесія
set up v	засновувати
severely adv	суворо
shade n	відтінок

shape n, v	форма, формувати
shark n	акула
sharp	гострий
sheep n	вівця
shelf n	полиця
shellfish n	істота з черепашкою
shield n	щит
shire n	шайр (ваговоз)
shoe n	черевик, взуття
show n, v	виставка, показувати
sights pl	визначні місця
silage n	силос
sink v	опускатися
size n	розмір
skeleton n	скелет
skin n	шкіра
sleek adj	лискучий
sluggish adj	ледачий
smell n	запах
snail n	слимак
sneeze v	чхати
social work n	громадська робота
sodium n	натрій
soften v	пом'якшувати
soil n	грунт
solid adj	твердий
solitary adj	<i>тут:</i> самотній
sour cream n	сметана

source n	джерело
specialist n	фахівець
species n	вид, рід
speed n	швидкість
sperm n	сперма
spicy	пікантний
spinal cord	спинний мозок
spine n	голка
spoil v	псуватися
spot n	<i>тут:</i> місце
spread v	поширюватись
sputum n	слина
squeaky râles	сухі хрипи
St. Paul	св. Павло
stagnant water	непроточна вода
starch n	крохмаль
state n	державна
steak n	м'ясо на біфштекс
steer n	бик, бичок
sting n	жало
stipend n	стипендія
stir v	перемішувати
stock n	худоба
stomach n	шлунок; черевце
stone n	камінь
stonefish n	риба-камінь
storage n	зберігання, схов
store v	запасати

stranger n	чужинець
strength n	сила
stretch v	простір
strike v	бити; уражати
studies n	навчання
stunted	чахлий
sturdy adj	сильний, міцний
sturgeon n	осетер
subacute adj	підгострий
subject n	предмет
substance n	речовина
substitute n	замінник
successfully adv	успішно
sudden adj	раптовий
suffer v	страждати
sufficient	достатній
suited	придатний
sulphur n	сірка
supply n	постачання
suppressed adj	придушений
surgery v	хірургія
surgical adj	хірургічний
surroundings pl	середовище існування
survive v	лишитися живим
susceptible adj	сприйнятливий
suspended adj	висячий
swallow v	проковтнути

swarm n
swarming n
swine n
switch on v

рій
роїння (бджоли)
свиня
вмикати (струм)

Т

tail n
take care for v
take examinations
tallow n
tame v
taste n
technological
technologist n
technology n
teleosts pl
tempering n
tender
tentatively adv
term n
terrestrial adj
texture n
thaw v
the young
threat n

хвіст
піклуватися про
складати іспити
лій, жир, сало
приручати
смак
технологічний
технолог
технологія
костисті (риби)
дозрівання
ніжний
експериментально
семестр; ...
наземний
текстура
розморожувати
молодняк
загроза

threaten v	загрожувати
thrive v	добре рости
throat n	горло
throughout adv	скрізь
thymus n	загрудинна залоза
tint n	відтінок
tiny adj	крихітний
tissue n	тканина
toe n	палець (ноги)
tongue n	хоботок, язик
tooth n (teeth)	зуб (зуби)
top	<i>тут:</i> найвищий
tough	щільний
tower n	башта, вежа; Тауер
trade n	торгівля
Trafalgar	мис Трафальгар
train v	привчати до чогось, готувати (фахівців)
to transmit v	передавати
travel v	<i>тут:</i> переміщатися
treat v	обробляти, лікувати
treatise n	трактат
treatment n	лікування
trill v	виводити трелі
tripe n	тельбухи, рубці
trout n	форель
trunk n	тулуб
tubercle n	туберкул

tubercular adj
tuberculosis n
tularemia n
tuna n
turkey n
twice

туберкульозний
туберкульоз
туляремія
тунець
індик
два рази, двічі

U

ubiquitous adj
udder n
Ukraine n
unconsciousness n
undergo v
underground adj
unmated adj
upheaval n
unsuitable n
urinary adj
urine n

повсюдний
вим'я
Україна
непритомність
зазнавати
підземний
неплідна
зрушення, переворот
непідхожий
сечовий
сеча

V

vaccine n
vaccinate ▯
vaginal adj
value n
value v
variety n
various adj
vary v

вакцина
щепити
вагінальний
цінність
дорожити, цінувати
різноманітність
різноманітний
змінювати(ся)

veal n	телятина
vermin n	збірн. паразити
vertebrate n	хребетна тварина
vessel n	судно, корабель
veterinarian n	ветеринар
veterinary adj	ветеринарний
veterinary doctor n	ветеринарний лікар
viable adj	життєздатний
victim n	жертва
viral adj	вірусний
virus n	вірус
visit v	відвідувати
vocalization n	вокалізація
vocalize v	видавати звуки
vomit v	блювати

W

warm-blooded adj	теплокровний
waste products	відпрацьовані продукти
water v	напувати; поливати
water buffalo n	буйвол
wattle n	борідка (у півня)
wax n	віск
weakened adj	ослаблений
weapon n	зброя
weigh v	важити
weight n	вага

welfare n	добробут
well-educated	освічений
Western Ukraine n	Західна Україна
whale shark n	китова акула
whitefaces pl	білоголові (худоба)
wild	дикий
windpipe n	трахея
wing n	крило
wipe out ⚭	знищити
wit n	розум
wither ⚭	в'янути
wool n	вовна, шерсть
world n	світ
worm n	черв'як
worn-out	зношений
wound n	рана
wrap v	обгортати

Y

yeast n	дріжджі
yield v	давати (плоди, врожай)
yogurt n	йогурт
yolk n	жовток

Z

zooengineering	зооінженерний
Zoology n	зоологія
Zoonosis	зооноз

Grammar explanation

Запитання в англійській мові

Специфіка формування запитань в англійській мові є не дуже складною, головне зрозуміти та запам'ятати, що тут є **СТАЛИЙ ПОРЯДОК СЛІВ У ЗАПИТАННІ**. Тобто, ми не можемо переставляти слова місцями, як ми це робимо в українській мові, наприклад:

Do I go to school? (слова не можемо переставляти в межах запитання)

Чи я йду до школи? (тут ми можемо переставляти слова місцями, наприклад: Йду я до школи? До школи йду я? Я йду до школи?)

Це перше і найголовніше правило

Тепер перейдемо до **формування запитань**

Загальні запитання – тобто ті, які починаються з допоміжних дієслів робити легко, складність полягає тільки у Present і Past Simple де ми мусимо додати допоміжне дієслово Do, does та Did в минулому. У всіх решта часах ми виносимо наперед допоміжне дієслово (Друге слово в реченні). Наприклад

She reads books – Does she read books? – ми поставили does на початок речення

He went to school – did he go to school? – так само, лише минулий час перенесли з дієслова went (go) на Did

Це складніші варіанти. Простіші будуть формуватися так:

I have gone to school?

Have I gone to school?

She will have been reading books

Will she have been reading books?

We are going to the cinema

Are we going to the cinema?

Зверніть увагу, ми тільки міняємо місцями перше та друге слово в реченні.

Коли є модальні дієслова, то тут ми робимо так само, виносимо їх наперед

I must go to school

Must I go to school?

She can read book

Can she read books?

We may go to cinema

May we go to cinema?

Це стосовно загальних запитань

Спеціальні запитання, або запитання Wh формуються також просто

Тут нам потрібно поставити питальне слово перед допоміжним дієсловом у загальному запитанні, наприклад:

I go to school – Do I go to school? – Where do I go?

School ми забрали, щоб запитання було логічним, а не давати відразу відповідь на запитання у самому запитанні. Таким самим чином ми формуємо усі питання. Бажано попрактикуватися декілька разів. Придумайте одне речення і постарайтеся поставити максимум запитань до нього.

ПРОТЕ є виняток. Він стосується питального слова who – хто.

І тут все залежить від того, до чого ви ставите питання, до суб'єкта або підмета (Перше слово в реченні в англ. мові) чи до інших членів речення. Формування є простим, наприклад:

Ivan goes with Peter to pub

Якщо ми ставимо питання до Івана, тобто хто йде з Петром у паб – ми Іван замінюємо на who

Who goes with Peter to pub? – просто

Якщо ми ставимо питання до Петра, наприклад З ким Іван йде до пабу? Тобі буде

Who does Ivan go to pub with? – також просто

Present Simple and Present Continuous

Це два теперішні часи, які мають дуже невелику різницю

Розглянемо перший – це **Present Simple**

Утворюється
 $S + V(es)$

Do/does + S+ V?

S + do/does + not + V

S – підмет або головна дійова штука в реченні

V – дієслово

Ми додаємо закінчення *es* до дієслова коли ми маємо в якості підмета *He, She, It*, або імена людей, тварини, речі ітд.

Наприклад

He goes to school / Peter goes to school – Peter=He

Цей час вживається:

1) Для позначення регулярних дій в теперішньому часі

He goes to school

Він ходить до школи – кожного дня

2) Для позначення законів природи

Water boils at 100 C

Вода закипає при 100 C

3) Для позначення розкладу – тут увага, будь який розклад, мається на увазі розклад руху, відкриття магазинів, телепередач ітд. Але є нюанс, ми кажемо: Потяг приїде в 8 годині вечора (а зараз 4 дня) – тобто це фактично майбутній час, але тут вживатиметься *Present Simple*

Train arrives at 8 pm.

Цей час вживається з такими обставинами часу:

Always, every _____, usually, often, seldom, rarely, never

Present Continuous

S + am/is/are + Ving

Am/is/are + S + Ving?

S+am/is/are + not + Ving

Вживається

- 1) Для позначення дії, яка відбувається зараз
- 2) Для позначення тимчасової дії – мається на увазі тимчасова дія, наприклад: I am using my dads car these days. – these days означає цими днями, тобто тимчасово. В цьому випадку буде часто використовуватися these + days, weeks ітд.
- 3) Для позначення запланованої майбутньої дії – але вживайте недалеко майбутнє, тобто сьогодні ввечері, але не завтра.
I am meeting my friend this evening.
Я зустріну свого друга цього вечора
- 4) Для ситуацій, яка змінюється. Наприклад:
More and more people are using cars
Все більше і більше людей використовують авто
Тут є одна підказка – тут використовується вищий ступінь порівняння прикметників – more and more, bigger and bigger, newer and newer ітд.

Обставини часу, які вживаються з цим часом:
now, at the moment, these _____, at present.

Past Simple

Утворення

S + V2/ed

Did + S + V2/ed?

S + did + not + V2/ed

S – це підмет або головна дійова штука в реченні

V – це дієслово. Даний час використовує дієслово зі закінченням ed якщо воно правильне. Якщо не правильне, тоді з 2 колонки.

Приклад:

I went to school

Did I go to school?

I did not go to school

Вживання

Цей час позначає звичайну минулу дію.

Обставини часу: ago, when, then, in 1980, last..., yesterday

Present perfect

Утворення

S+have/has +V3/ed

Have/has + S + V3ed?

S + have/has+not+V3/ed

S – це підмет або головна дійова штука в реченні

V – це дієслово. Даний час використовує дієслово зі закінченням ed якщо воно правильне. Якщо не правильне, тоді з 3 колонки.

Приклад:

I have gone to school

Have I gone to school?

I have not gone to school

Вживання:

Вживається для позначення дії, яка почалася у минулому та або нещодавно закінчилася або ще триває. Тут ключове слово є щойно. Загалом, це час, який позначає минулу дію, яка нещодавно відбулася. Проте є проблема у розумінні цього часу укр. студентами. Детальніше ми його розглянемо в порівнянні з минулим.

Обставини часу: just, ever, never, already (тільки в стверджувальних реченнях), yet (тільки в запитаннях і запереченнях), still, so far.

Ці два часи є дуже важкими для укр. студентів. Чому? В укр. мові ми маємо один минулий час, а ці два часи в перекладі звучатимуть як минулий час. В англ. мові вони мають кардинальну різницю, тому старайтеся їх зрозуміти, проте не завдяки перекладу. Кожний з них має свою специфіку і дію, яку вони позначають. Загалом в українській мові є один час, який використовується для минулих дій, в англійській мові ми маємо шість часів, і це без future in the past.

Відмінності між двома часами

Past Simple	Present Perfect
Дія відбулася в чітко зазначений час у минулому. Тобто має бути обов'язково сказано коли відбулася дія, наприклад last year, yesterday, 2 years ago ітд Я помив машину вчора (чітко зазначений час - вчора) I washed my car yesterday	Дія відбулася у минулому, але без чітко вказаного часу, наприклад Я помив машину (коли? Не вказано часу) I have washed my car

Минула дія, звичка або стан Я ходив до школи I went to school	Дія, яка нещодавно закінчилася Я щойно закінчив школу I have just finished school
Минула дія, яка відбувалася одна за одною Я витягнув ключі, відкрив двері і зайшов до кімнати I took out keys, opened the door and went into the room	Дія, яка почалася у минулому і продовжується до тепер Вона жила в цьому будинку 2 роки (і все ще живе) present perfect She has lived in house for 2 years Вона жила в цьому будинку 2 роки (вже не живе) past simple She lived in house for 2 years
Дія, в якій не зазначено час і вона не пов'язана з теперішнім Я зустрів Елвіса Преслі (Елвіс помер і я його вже не зустріну) I met Elvis Presley	Дія, в якій не зазначено час і вона пов'язана з теперішнім Я зустрів Мадонну (Вона ще жива і я її можу ще зустріти) I have met Madonna

Causative form **Have smth done**

Ця форма є трохи незвичною для нашої мови, оскільки вона не звучатиме в перекладі нормально та логічно

Перекладається вона як **хтось комусь щось робить**

Наприклад:

Мені малюють будинок – I have my house painted

Тут виникає проблема, бо в дослівному перекладі це означатиме **Я маю свій будинок мальований**

Якщо комусь буде легше, то створюйте цю форму за таким українським прикладом **Я маю щось зроблене**

Для кращого розуміння – попрактикуйтеся і напишіть декілька речень

Різниця між **Get** і **Have** як написано в підручнику майже немає, тому можете використовувати в будь-якому випадку

Декілька прикладів:

Їй прибирають кімнату – She has her room cleaned

Їм ремонтують машину – They have their car repaired

Нам замовляють столик – We have table booked

Обов'язково дотримуйтеся формули: **хтось має щось зроблено**

Обов'язково має бути **Have** даліше **щось** або **предмет** і тоді дієслово в **3 формі** або з **закінченням ed**

Порівняння прикметників

Існує дві форми порівняння прикметників, як і в українській мові:

Вищий – коли ми додаємо суфікс – великий – більший, високий – вищий, зелений – зеленіший. Більший, вищий і зеленіший це прикметники вищого ступеня порівняння. В англ. мові все так само, тільки простіше. До прикметників ми додаємо закінчення *er* – якщо вони короткі *big – bigger, tall – taller, smart – smarter*

Якщо прикметники довгі – то ми перед ними ставимо слово *more*, наприклад: *intelligent – more intelligent, casual – more casual, interesting – more interesting*

Найвищий – це коли ми в укр. мові додаємо префікс **най** перед прикметником, наприклад – зелений – найзеленіший, великий – найбільший, могутній – наймогутніший. В англ. мові все так само, ми додаємо закінчення *est* в кінці прикметника якщо він короткий – наприклад: *big – biggest, smart – smartest, tall – tallest*.

Якщо прикметники довгі – то ми перед ними ставимо слово most, наприклад: intelligent – most intelligent, casual – most casual, interesting – most interesting

Одна важлива річ: Завжди перед **НАЙВИЩИМ ПРИКМЕТНИКОМ** ставимо артикль the – the biggest, the tallest, the most interesting

Інші види порівнянь

As...as – такий...як ----- для заперечень використовуємо not as ... as

Він такий зелений як трава She is as green as grass

The more/...er, the more/...er – чим, тим

The more you study, the better you will know

Less... than – менш..... ніж

Він менш говіркий ніж вона – He is less talkative than she

The least of/in – найменш у/в

Він найменш говіркий у класі – He is the least talkative in the class

Для того, щоб краще зрозуміти цю тему, напишіть по 5 речень до кожного з порівнянь

Article

Артикль в англійській мові вживається перед злічуваними іменниками (які можна порахувати).

В англійській мові є два типи артиклів

- Неозначені – це артиклі **a/an**. Вони вживаються перед іменниками, в однині, які не є означеними, тобто:

A car is standing at parking

Ми вживаємо артикль **A**, оскільки ми не знаємо, яка машина стоїть на парковці, тобто **A car** – будь-яка машина

a – вживається перед приголосними

an – вживається перед голосними

- означений **the** – вживаються перед іменниками, в однині та множині, які є означувальними, тобто

The car is standing at parking

Ми вживаємо артикль **The**, оскільки ми знаємо точно, яка машина стоїть на парковці, тобто **The car** – конкретна машина

Існує ще багато випадків вживання артиклів, найважливіші з них:

- 1) **a/an** вживається перед злічуваними іменниками в однині, коли ми говоримо про речі загалом.
An airplane is faster than a train
An airplane – будь-який літак
A train – будь-який потяг
- 2) ми вживаємо **a/an** часто після дієслів **to be/to have**
- 3) **a/an** не вживаються перед іменниками в множині або незлічуваними. Замість них ми вживаємо **some**
I would like some biscuits (biscuits – печеня - незлічуваний)
- 4) **the** ми вживаємо перед іменниками в множині або однині, злічуваними та незлічуваними, коли ми

говоримо про щось конкретне або коли ми говоримо про річ вдруге

The boy who has just left is my cousin the boy – конкретно – бо він мій кузин, або той, хто щойно вийшов

There is a cat on the sofa. The cat is sleeping – the cat – вживається вдруге. The sofa – конкретно, на якій кіт.

- 5) Ми використовуємо **the** перед словами **cinema, theatre, radio, country(side), seaside, beach.**
We go to the beach every Sunday.

Reported speech

В будь-якій мові існує пряма і непряма мова.

Пряма мова – Він сказав: "я йду до школи"

Непряма мова – Він сказав, що він пішов до школи

В англійській мові для прямої мови ми використовуємо слова tell – told say – said

He said: "I go to school"

He said that he went to school

1. Щоб зробити непряму мову, ми використовуємо дієслово (say, tell, advice, explain, promise) після чого йде слово that – що/щоб
2. Займенники та присвійні прикметники змінюються на reflexive
She said: "I can repair it myself"
She said that she could repair it by herself
3. Деякі слова змінюються в непрякій мові

Direct	Indirect
This	That

These	Those
Here	there
Can	Could
Must	Have to
May	Might
Last night/month/year	Previous night/month/year
Present simple	Past simple
Present perfect	Past perfect
Present continuous	Pas continuous
Pas simple	Past perfect
Future will	Would

He said: "I am writing the letter" – He said that he was writing the letter

She said: "I will go to the cinema" – She said that she would go to the cinema

We told: "We have cleaned the car" – We told that we had cleaned the car

They said: "We must listen" – They said that they have to listen

4. Деякі модальні дієслова не змінюються в непрямій мові, ми їх залишаємо без змін, це: should, would, might, could, ought to
He said: "I should close the window" – He said that he should close the window
5. Для того, щоб зробити непряму мову в командах, ми використовуємо дієслова (order, ask, tell, advise, offer, warn, beg, suggest) та додаємо після них інфінітив to

He said: "Don't touch it" – He warned me not to touch it – ми тут say змінили на warn оскільки це звучить як попередження, або

He said: "don't touch it" – He advised me not to touch it – тут вже звучить як порада

Тобто ми можемо самі вибрати дієслово, відповідно до того контексту, який нам потрібен
В цьому випадку головне знати переклад дієслів в зеленому полі

6. Питання зробити в непрямій мові дуже просто.
Для цього ми використовуємо слово ask – питати

- **Якщо** питання починається на допоміжне дієслово, то ми використовуємо слово Чи – whether/If

He asked: "Do you know the time?" – He asked me whether/if I knew time.

She asked: "Have you read the book?" – She asked me whether/if I had read book

- **Якщо** питання починається на питальне слово, то ми його так і переробляємо, залишаючи це питальне слово

He asked: "When do you come?" – He asked me when did I come.

She asked: "What do you read?" – She asked me what did I read.

Modal verbs

Модальні дієслова в англійській мові позначаються декілька варіантів дій, тобто фізичну здатність (могти), примус (мусіти), критику (варто) і т.д. Розбирати ми їх будемо в залежності від застосування. **НАЙГОЛОВНІШЕ**, що слід запам'ятати, це те, що після модальних дієслів вживається дієслово в інфінітиві (оригінальний варіант).

Запитання і заперечення за допомогою модальних ставляться дуже просто. В запитанні модальне виносите наперед, а в запитанні добавляете not

I can swim
Can I swim?
I can not swim

Здатність

Здатність ми виражаємо такими модальними дієсловами

Can – могли (теп і майб час)

I can read now

Could – міг (мин час)

I could read when I was 5

be able to – (могли. Ве відміняється am is are) ця форма має варіанти у всіх часах, просто ставите дієслово be у потрібний час

I am able to read / She is able to read / They are able to read

I was able to read / They were able to read

They will be able to read.

Можливість

Для вираження можливості (Я можливо піду до школи) ми використовуємо:

Can/could/may/might – можливо. Вони використовуються без різниці значень.

She can/could/may/might go to Spain.

Must – мусить. Використовується, коли ви точно знаєте, що дія відбувається.

She must be at home on Sunday – в неділю ніхто не працює

Can't – не може бути.

She can't go to work on Sunday.

Можливість відбуття дії відповідно до відсотків:

Must – 100%

Can't – 80%

Can/may/could/might – 60%

Дозвіл

Для запитання про дозвіл та давання/не давання дозволу ми використовуємо:

Can/could/may/might – чи можна? –
використовуються без різниці значень

Can/Could/may/might I borrow your book?

І відповідь дає

Yes, you can/may/could/might

No, You can/could/may/might not

Ще ми використовуємо **must not** – проте це дуже жорсткий варіант, тобто ви його вживаєте, коли ви забороняєте щось робити комусь.

Примус

Для примусу ми використовуємо:

Must – (теп/майб час) мусиш зробити, це обов'язково (100%)

ought to – (теп/майб час) мусиш зробити, це обов'язково (100%)

have to – (будь-який час) – маєш щось зробити, але це не обов'язково (70%)

You must do your homework

You ought to do your homework

You have to/had to/ will have to do your homework

Відсутність необхідності

Must not – не мусиш, заборонено щось робити

Don't have to/didn't have to/ will not have to або **don't need to/didn't need to/will not need to** – не потрібно щось робити.

Needn't – не потрібно щось робити (але ви це зробили)

You needn't have bought bread, we have it in the house.

You must not to drive carelessly.

You don't have to work on Saturday

Прохання/пропозиція

Ці модальні дієслова вживаєте, коли хочете щось запропонувати або попросити

Can/could – чи ти щось зробиш

Can/could you help me to clean my room?

Would you like – чи хотів би ти (ввічлива форма)

Would you like a cup of coffee?

Shall I/we або **lets/how about + Ving** – давайте

Shall we go to the cinema?

Lets go to the cinema

How about going to the cinema?

Will you/he/she/it/they – давайте

Will you help me with homework?

Порада

Варто щось зробити

Should – вартує

You should have read this book – тобі вартує прочитати цю книжку

Had better – краще б

You had better read this book – тобі краще було б прочитати цю книжку

Для кращого розуміння модальних дієслів, вивчіть їх переклад та напишіть декілька речень з кожним з них

Suggestions

Ми утворюємо пропозиції в англ. мові за допомогою декількох слів.

Let's

Let's go dancing

Shall

Shall we go dancing

How about + Ving

How about going dancing?

Why don't.....

Why don't we go dancing?

Suggest + Ving

I suggest going dancing

Просто ставите ці слова в потрібному місці в реченні і готово

Для кращого розуміння – попрактикуйтеся написавши декілька варіантів з кожним із словосполучень

Passive Voice

Пасивний стан в англійській мові часто використовується:

- 1) Коли ми не знаємо хто виконує дію
The picture is painted
- 2) Дія важливіша ніж об'єкт
The car is broken.
- 3) Щоб наголосити суб'єкт

This picture was painted by Picasso

Пасивний стан утворюється за допомогою формули **be+Ved/3**, де be ми ставимо у потрібний час та форму, наприклад

The car is repaired
The car was repaired
The car is being repaired
The car will be repaired
The car have been repaired
The car must be repaired

Перетворювати активний стан у пасивний не складно, ми лише міняємо суб'єкт і об'єкт місцями і застосовуємо формулу пасиву, наприклад

I repaired the car – The car was repaired by me
She will paint window – window will be painted by her

Ми вживаємо **by** – коли дія виконується особою, тобто ким
The book was read **by** her – Книжка була прочитана (**ким**) нею
Ми вживаємо **with** коли дія виконувалася іншим об'єктом або складається з чогось
The book is compiled **with** words – Книжка складається **зі** слів

Countable and Uncountable nouns

Злічувані та незлічувані іменники

Злічувані – це ті, які ми можемо порахувати: ручка, олівець, зошит ітд

Не злічувані – це ті, які ми не можемо порахувати: сніг, вода, молоко ітд

Деякі не злічувані нам можуть здаватися злічуваними, наприклад: гроші, час, новини, меблі, хліб, дерево (матеріал) ітд

Незлічувані іменники не мають множини!!!

Позначення кількості

Злічувані	Не злічувані
Many багато	Much багато
A lot of – багато	
Few мало	Little мало

Для того, щоб не злічувані іменники зробити злічуваними, ми їх поміщаємо в якусь ємкість, наприклад: вода – два стакани води

Relative clauses

Підрядні речення

Ця тема дуже легка в англійській мові, оскільки підрядні речення утворюються так само як і в українській мові. Основне тут знати запитальні слова і переклад до них. тобто when – коли, what – що, who – хто, that – що, який ітд

Проте є декілька нюансів

Who – вживається завжди з людьми

What – з неживими об'єктами

Which – вживається зі всіма

Підрядні речення складаються з двох менших речень, які з'єднані між собою тими питальними словами. Наприклад

Я не знаю де він живе

I don't know where he lives

Вона піде до дому, коли зробить домашнє завдання

She will go home when she does her homework

Машина, яку я купив вчора, не працює

The car that I bought yesterday, doesn't work

Conditionals

Conditionals в англійській мові це речення зі словом **якщо**

Якщо я піду до дому, то ти будеш плакати

Речення з **якщо** в обидвох мовах складаються з двох менших речень - Якщо я піду до дому – перше речення, то ти будеш плакати – друге речення

В українській мові ми маємо два типи речень з **якщо**

1) **Дійсний спосіб** - просте речення, реальна дія, тобто

Якщо я буду вчитися, то я буду знати

2) **Умовний спосіб** – речення, до якого ми додаємо частки **б** або **би**

Якщо б я вчився, то я б знав

Все ніби просто. Зверніть увагу, що в українській мові речення з умовним способом використовуються в минулому часі.

Тепер перейдемо до англійської 😊 є два важливих моменти:

1. В англ. мові частки **б** та **би** які позначають нашу умовність, перекладаються як **would**
2. В укр мові ми вживаємо для умовного способу минулий час і в англійській також
3. В англійській мові є два умовних стани, теперішній та минулий. І тут для нас є дуже велика проблема, оскільки ми цього не маємо в нашій мові.

Проте не все так просто з англійською. В них є чотири або дехто каже 3 форми утворення речень з **якщо**

Дійсний спосіб	Дія реальна, в теперішньому часі Якщо зима, то вода холодна	If + present simple, present simple If it is winter, water is cold
	Дія реальна, але з відсилкою на майбутній час Якщо буде зима, то вода буде холодна	If + Present tense (будь-який з 4)*, Present Simple, will, can, may If it is winter, water will/may/can be cold
Умовний спосіб	Дія умовна теперішня Якщо б зима була морозна (зараз), то вода була б холодна (зараз)	If + past simple/past continuous, would + V If winter was icy, water would be cold
	Дія умовна минула Якщо б зима була морозна (вчора), то вода була б холодна (вчора)	If + past perfect/past perfect cont., would + have + V3/ed If winter had been icy, water would have been cold

***після if will не вживається**

Для кращого розуміння, напишіть одне речення і провідмінійте його у всіх Conditionals. Зробіть так декілька разів для кращого розуміння.

*Таблиця неправильних дієслів в англійській мові
/ Irregular verbs*

Infinitive	Past Simple	Past Participle	Переклад
to abide	abode (abided)	abode (abided)	дотримуватися
to arise	arose	arisen	виникати
to be	was/were	been	бути
to bear	bore	born / borne	нести
to beat	beat	beaten	бити
to become	became	become	ставати
to begin	began	begun	починати
to bend	bent	bent	згинатися
to bet	bet	bet	ставити
to bid	bade/bid	bidden/bi d	взяти участь в торгах
to bind	bound	bound	пов'язувати

to bite	bit	bitten	вкусити
to bleed	bled	bled	кровоточити
to blow	blew	blown	дути
to break	broke	broken	ламати
to breed	bred	bred	виросувати
to bring	brought	brought	приносити
to broadcast	broadcast (broadcast ed)	broadcast (broadcast ed)	віщати
to build	built	built	будувати
to burn	burnt (burned)	burnt (burned)	горіти, палити
to burst	burst (bursted)	burst (bursted)	прорватися
to buy	bought	bought	купувати
to cast	cast	cast	кидати
to catch	caught	caught	ловити
to choose	chose	chosen	вибирати
to cling	clung	clung	чіплятись, прилипати
to clothe	clad (clothed)	clad (clothed)	одягати(ся)

to come	came	come	приходити
to cost	cost	cost	коштувати
to creep	crept	crept	повзти
to cut	cut	cut	різати
to dare	durst (dared)	dared	(по)сміти
to deal	dealt	dealt	вести справи
to dig	dug	dug	копати
to dive	dove (dived)	dived	ниряти, занурюватися
to do	did	done	робити
to draw	drew	drawn	малювати/тягну ти
to dream	dreamed (dreamt)	dreamed (dreamt)	мріяти
to drink	drank	drunk	пити
to drive	drove	driven	керувати автомобілем
to dwell	dwelt	dwelt	жити
to eat	ate	eaten	їсти
to fall	fell	fallen	падати

to feed	fed	fed	годувати
to feel	felt	felt	відчувати
to fight	fought	fought	боротися
to find	found	found	знаходити
to fit	fit (fitted)	fitted	підходити (напр. по розміру)
to flee	fled	fled	бігти
to fling	flung	flung	кидати
to fly	flew	flown	літати
to forbid	forbade (forbad)	forbidden	заборонити
to forecast	forecast	forecast	передбачити
to forget	forgot	forgotten	забути
to forgive	forgave	forgiven	пробачити
to foresee	foresaw	foreseen	передбачити
to foretell	foretold	foretold	прогнозувати
to forsake	forsook	forsaken	покидати
to freeze	froze	frozen	заморозити

to get	got	got (gotten)	отримати
to give	gave	given	дати
to go	went	gone	йти
to grind	ground	ground	точити/молоти
to grow	grew	grown	рости
to hang	hung / hanged	hung / hanged	висіти
to have / has	had	had	мати
to hear	heard	heard	чути
to hew	hewed	hewn / hewed	рубати
to hide	hid	hidden	ховати
to hit	hit	hit	попадати
to hold	held	held	тримати
to hurt	hurt	hurt	причиняти біль
to keep	kept	kept	підтримувати, втримувати
to kneel	knelt (kneeled)	knelt (kneeled)	ставати на коліна
to knit	knit	knit	в'язати, плести

	(knitted)	(knitted)	
to know	knew	known	знати
to lay	laid	laid	класти/стелити
to lead	led	led	вести
to leap	leaped / leapt	leaped / leapt	скакати
to learn	learnt (learned)	learnt (learned)	учитися
to leave	left	left	покидати, залишати
to lend	lent	lent	кредитувати
to let	let	let	дозволити
to lie	lay	lain	лежати
to light	lit	lit	запалювати, освічувати
to lose	lost	lost	втрачати, губити
to make	made	made	робити
to mean	meant	meant	означати
to meet	met	met	зустріти
to misgive	misgave	misgiven	вселяти побоювання

to mishear	misheard	misheard	помилитися
to mishit	mishit	mishit	промахнутися
to mislay	mislaid	mislaid	покласти не на місце
to mislead	misled	misled	ввести в обман
to misread	misread	misread	неправильно розуміти/читати
to misspell	misspelt (misspelled)	misspelt (misspelled)	писати з помилками
to misunders tand	misunders tood	misunders tood	неправильно розуміти
to mistake	mistook	mistaken	помилитися
to mow	mowed	mown	косити
to offset	offset	offset	компенсувати
to outbid	outbid	outbid	перебити ціну
to outdo	outdid	outdone	перевершити
to outrun	outran	outrun	переганяти
to overcome	overcame	overcome	подолати
to	overdrew	overdraw	перебільшувати

overdraw		n	
to pay	paid	paid	платити
to plead	pled (pleaded)	pled (pleaded)	благати
to put	put	put	класти, ставити
to quit	quit (quitted)	quit (quitted)	виходити, покидати
to read	read	read	читати
to reset	reset	reset	повертати
to rid	rid	rid	позбавити
to ride	rode	ridden	їздити верхи
to ring	rang	rung	дзвонити
to rise	rose	risen	підніматись
to run	ran	run	бігти
to say	said	said	казати
to see	saw	seen	бачити
to seek	sought	sought	шукати
to sell	sold	sold	продавати
to send	sent	sent	посилати
to set	set	set	садити/встановл

			ЮВАТИ
to sew	sewed	sewn (sewed)	ШИТИ
to shake	shook	shaken	ТРЯСТИ
to shave	shaved	shaven (shaved)	БРИТИСЬ
to shear	sheared	shorn (sheared)	СТРИГТИ
to shed	shed	shed	ПРОЛИТИ
to shine	shone (shined)	shone (shined)	СВІТИТИ
to shoot	shot	shot	СТРІЛЯТИ
to show	showed	shown	ПОКАЗАТИ
to shrink	shrank / shrunk	shrunk / shrunken	СТИСКАТИ
to shut	shut	shut	ЗАКРИТИ
to sing	sang	sung	СПІВАТИ
to sink	sank / sunk	sunk	ПОПУСКАТИСЯ
to sit	sat	sat	СИДІТИ
to slay	slain	slain	ВБИТИ
to sleep	slept	slept	СПАТИ

to slide	slid	slid	кавзати
to sling	slung	slung	кидати
to smell	smelt	smelt	пахнути/нюхати
to smite	smote	smitten	розбити
to speak	spoke	spoken	говорити
to speed	sped (speeded)	sped (speeded)	мчати
to spell	spelt (spelled)	spelt (spelled)	читати по буквам
to spend	spent	spent	тратити/провод ити
to spill	spilt (spilled)	spilt (spilled)	пролити
to spin	spun	spun	крутити
to spit	spat	spat	плювати
to split	split	split	розділяти
to spoil	spoilt (spoiled)	spoilt (spoiled)	портити
to spread	spread	spread	розпахнути
to spring	sprang	sprung	скакати
to stand	stood	stood	стояти

to steal	stole	stolen	красти
to stick	stuck	stuck	прикріпити, приклеїти
to sting	stung	stung	жалити
to stink	stank	stunk	неприємно пахнути
to strike	struck	struck	страйкувати
to string	strung	strung	нанизати
to swear	swore	sworn	сваритися
to sweep	swept	swept	підмітати
to swell	swelled	swollen (swelled)	надуватися
to swim	swam	swum	плавати
to swing	swung	swung	качати
to take	took	taken	брати
to teach	taught	taught	вчити
to tear	tore	torn	рвати
to tell	told	told	розказати
to think	thought	thought	думати
to throw	threw	thrown	кидати

to thrust	thrust	thrust	ШТОВХАТИ/засовувати
to tread	trod	trodden / trod	ставати, ступати
to undercut	undercut	undercut	знижувати ціну
to undergo	underwent	undergone	відбутися
to understand	understood	understood	розуміти
to undo	undid	undone	відмінити
to uphold	upheld	upheld	підтримати
to upset	upset	upset	засмутитись
to wake	woke (waked)	waked (woken)	будити
to waylay	waylaid	waylaid	підстерегти
to wear	wore	worn	носити, одягати
to weave	wove (weaved)	wove (weaved)	ткати
to wed	wed	wed (wedded)	одружуватися
to weep	wept	wept	плакати/потіти

to wet	wet (wetted)	wet (wetted)	зволожувати
to win	won	won	вигравати, перемагати
to wind	wound	wound	заводити/намотувати
to withstand	withstood	withstood	протистояти
to wring	wrung	wrung	зжимати
to write	wrote	written	писати

СПИСОК ВИКОРИСТАНОЇ ЛІТЕРАТУРИ

1. Англо-український словник / За ред.. М.І.Балла. – Київ, 2000. – 731 с.
2. Круглова Т.М. Reader. – Київ: Вища школа, 1983.
3. М. Ф. Падура. Easy English. Навчальний посібник для занять на першому курсі. – Львів, 2013. – 252 с.
4. Misztal Mariusz. Tests in English Thematic Vocabulary. – К.: Знання, 1999. – 352 p.
5. The World Book. Encyclopedia. Chicago, London: World Book, Inc, 1994.

Pictures taken from the following sources:

<https://easzopets.com/services/doorstep-veterinary-service/>
<https://www.worldhistory.org/article/1549/a-brief-history-of-veterinary-medicine/>
<https://www.geeksforgeeks.org/classification-of-animals/>
<https://www.pinterest.com/pin/masculine-and-feminine-gender-of-animals-in-english-mr-mrs-english-e11--675610381639107717/>
<https://www.pinterest.com/pin/803822233493429173/>
https://www.freepik.com/premium-vector/farm-animal-cow-standing-grass-field_33988360.htm
<https://www.etsy.com/listing/1595496269/vintage-dairy-cow-fun-fact-5-fun-facts>
<https://www.britannica.com/animal/pig-mammal-group>
https://www.facebook.com/lifewithpigs/photos/some-pig-facts/2356212281093746/?locale=zh_CN&_rdr
<https://www.kalmbachfeeds.com/blogs/goats-and-sheep/caring-for-sheep>
<https://dictionary.cambridge.org/uk/dictionary/english/chicken>
<https://petlibro.com/blogs/all/the-fascinating-world-of-cats-10-surprising-cat-facts>

<https://www.sfanimalcare.org/services/licensing-your-pet/>
<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/ZoonoticDiseases.aspx>
<https://promar-international.com/how-to-defeat-tb-on-farm/>
https://link.springer.com/chapter/10.1007/978-3-030-18690-6_9
<https://petlifeca.ca/health-wellness/conditions-diseases/lungs/aspiration-or-inhalation-pneumonia-in-dogs/>
<https://www.partners-in-reproduction.com/diseases-disorders/infectious-diseases/brucellosis/>
<https://www.happiesthealth.com/articles/health-conditions/rabies-symptoms-causes-diagnosis-treatment>
<https://www.farmhealthonline.com/disease-management/sheep-diseases/liver-fluke-sheep/>
<https://www.wjgnet.com/2307-8960/full/v3/i1/20.htm>
<https://www.four-paws.org/campaigns-topics/topics/farm-animals/10-facts-about-cattle>
<https://afs.ca.uky.edu/livestock/beef/parts>
<https://www.feedstrategy.com/animal-nutrition/dairy-cattle/article/15439818/best-practices-for-feeding-canola-meal-to-dairy-cows>
<https://afs.ca.uky.edu/livestock/beef/breeds/angus>
https://www.sciencelearn.org.nz/image_maps/104-ruminant-digestion
<https://justbeehoney.co.uk/blogs/just-bee-honey-blog/whats-inside-a-beehive>
<https://americanpestonline.com/pest-info/bees-wasps-and-hornets/honey-bee/>
https://www.omlet.co.uk/guide/parrots/parrots and disease/parrot_diseases/
<https://www.britannica.com/animal/sucker-fish>
<https://www.freepik.com/premium-vector/types-fish-as-underwater-wildlife-species-variety-collection-outline-set->

[educational-labeled-water-inhabitants-sea-river-ocean-as-nature-seafood-products-vector-illustration-marine-life_20396140.htm](#)
<https://www.culinaide.com/milk.htm>
<https://www.doctorkiltz.com/red-meats-list/>
<https://www.harniva.com/about-honey>
<https://www.geeksforgeeks.org/facts-about-fats/>
<https://byjus.com/biology/proteins/>
<https://www.knowdiabetes.org.uk/be-healthier/nutrition-hub/low-carb/how-many-carbs-are-in-this-food/>

Навчальне видання

Подоляк Михайло Володимирович (Part 1)
Череповська Тетяна Володимирівна (Part 2)
Падура Михайло Федорович (Part 3)

ENGLISH FOR VETERINARY STUDENTS

Відповідальний за випуск: **Подоляк М.В.**, Канд. пед. н., доц.,
завідувач кафедри філології імені Якіма Яреми.

Підписано до друку 28.06.2025. Формат 60x84/16
Гарн. Times New Roman. Папір офсетний. Ум. друк. арк. 20,81
Наклад 30 прим. Зам. № 28/06

Видавництво “ГАЛИЧ-ПРЕС”
Видавець ФОП Король І.В.
м. Львів, вул. С. Бандери, 65
Ел. пошта: lvivprint@ukr.net. Тел. 096-59-88-924
Свідоцтво ДК №5353 від 24.05.2017 р.

Друк ФОП Корпан Б. І.
Львівська обл., Пустомитівський р-н, с. Давидів, вул. Чорновола 18
Ел. Пошта: bkorpan@ukr.net, Свідоцтво фізичної особи-підприємця:
В02 № 635667 від 13.09.2007