Міністерство освіти і науки України

Луцький національний технічний університет

ENGLISH FOR ECOLOGISTS

Методичні вказівки до практичних занять та самостійної роботи для здобувачів першого (бакалаврського) рівня вищої освіти освітньої програми «Екологія» галузі знань Е Природничі науки, математика та статистика, спеціальності Е2 Екологія денної та заочної форм навчання

ОСВІТНЯ ПРОГРАМА «Екологія»
ГАЛУЗЬ ЗНАНЬ Е Природничі науки, математика та статистика
СПЕЦІАЛЬНІСТЬ Е2 Екологія

Луцьк 2025

УДК 811.11(07)
А 64

До друку
Голова вченої ради факультету освітніх, цифрових та соціальних технологій_____Г. А. Герасимчук

Затверджено вченою радою освітніх, цифрових та соціальних технологій Луцького НТУ, протокол
№ _____ від «___» _____ року

Електронна копія друкованого видання передана для внесення в репозитарій Луцького НТУ
Директор бібліотеки _____Н. П. Поліщук

Рекомендовано до видання на засіданні кафедри іноземної та української філології Луцького НТУ, протокол № _____ від «__» _____ 2025 року.

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А 64 **ENGLISH FOR ECOLOGISTS** [Текст] : Методичні вказівки до практичних занять та самостійної роботи для здобувачів першого (бакалаврського) рівня вищої освіти освітньої програми «Екологія» галузі знань Е Природничі науки, математика та статистика, спеціальності Е2 Екологія денної та заочної форм навчання/ уклад. Л. О. Доложевська. Луцьк : ЛНТУ, 2025. 52 с.

Видання містить теоретичний матеріал та практичні завдання, спрямовані на оволодіння здобувачами англійською мовою як засобом комунікації на професійному рівні, ознайомлення студентів із специфікою професійного мовлення та вироблення в них практичних навичок використання мови в спеціальності. Призначене для здобувачів освіти ОП «Екологія» підготовки бакалавра спеціальності Е2 Екологія денної та заочної форм навчання.

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Foreword

This textbook for ecology students studying English as a foreign language provides a comprehensive, practice-oriented approach to language learning. It covers key topics such as ecology, air, land, and water pollution. It also covers new types of pollution, such as noise and light pollution, equipping students with specialized vocabulary and relevant grammar structures.

Each unit features a thematic text, additional texts for reading, a vocabulary list, and varied exercises designed to enhance reading, writing, speaking, and listening skills. The grammar sections emphasize essential constructions like the passive voice, modal verbs, and conditionals, ensuring that learners acquire the necessary linguistic tools for technical communication.

Practical exercises simulate speaking, reading and writing, preparing students for professional environments. Clear explanations and structured activities make the textbook accessible for learners with different language proficiency levels.

Overall, this textbook serves as a valuable resource for developing language skills in the context of ecology, fostering students' academic and professional growth.

Unit 1

What Is Ecology?

Ecology is the branch of biology that focuses on the relationships between living organisms and their environment. It is not only about animals and plants, but also about microorganisms, people, and the non-living elements around them, such as air, water, soil, sunlight, and climate.

An **ecosystem** is a community of living things (called **biotic** factors) that interact with **abiotic** components, like temperature, water, minerals, and sunlight. Ecologists study how energy flows through these systems and how nutrients are cycled. For example, plants use sunlight to produce food, herbivores eat the plants, and predators eat the herbivores.

Ecology is important because it helps us understand how nature works and how human actions affect the environment. When forests are cut down, rivers polluted, or animal species become extinct, there are consequences for the entire ecosystem. Ecologists use field research, laboratory experiments, and computer models to understand and predict these impacts.

In today's world, ecology is especially relevant. Climate change, deforestation, air and water pollution, and loss of biodiversity are global problems. If we understand ecological principles, we can make better decisions, such as using renewable energy, protecting natural areas, recycling, and reducing waste.

Ecologists work in many areas: environmental monitoring, nature conservation, education, agriculture, and even urban planning. Their job is to observe, collect data, and recommend solutions that help both people and the planet.

Vocabulary Point

Ecology - the study of relationships between living things and their environment

Ecosystem - a system where living and non-living things interact

Biotic factors - living parts of an ecosystem (plants, animals, bacteria, etc.)

Abiotic factors - non-living parts of an ecosystem (sunlight, temperature, water, etc.)

Nutrient cycle - the way nutrients move through an ecosystem (e.g., carbon, nitrogen cycles)

Herbivore - an animal that eats only plants

Predator - an animal that hunts and eats other animals

Deforestation - the cutting down of forests

Biodiversity - the variety of life in a particular ecosystem or on Earth

Extinct - no longer existing (about species)

Pollution - harmful substances in the environment (air, water, soil)

Climate change - long-term changes in Earth's weather patterns

Renewable energy - energy from natural sources that are not depleted (sun, wind, water)

Conservation - protecting and managing natural resources and the environment

Sustainable - using resources in a way that does not harm the future

Urban planning - designing and organizing cities and towns

Field research - collecting information outdoors in nature

Laboratory experiment - scientific test done in controlled conditions (inside a lab)

Data collection - gathering information to study or analyze something

Exercises

1) **Match the words (A) with the correct definitions (B).**

A

1. ecosystem
2. pollution
3. species
4. environment
5. biodiversity
6. natural resources
7. sustainability
8. habitat
9. conservation
10. deforestation

B

a) a group of living organisms of the same kind
b) the place where an animal or plant lives
c) protection of nature and wildlife
d) harmful materials introduced into nature
e) using resources without damaging the future
f) variety of plants and animals in an area
g) the world around us – air, water, land
h) a community of plants, animals, and climate

i) removing trees from forests
j) materials like water, air, minerals, and forests

2) Complete the sentences using the correct word from the box:

species – conservation – habitat – biodiversity – pollution – environment – deforestation – sustainability – ecosystem – resources

1. The Amazon rainforest is home to many rare ___.
2. We must protect the ___ if we want animals to survive.
3. Air and water ___ are serious global problems.
4. Cutting down trees leads to ___ and the loss of biodiversity.
5. An ___ includes all living and non-living things in an area.
6. Some countries focus on energy ___ to protect the planet.
7. The desert is a difficult ___ for most plants.
8. Recycling helps save natural ___.
9. The WWF works on ___ projects worldwide.
10. Healthy ___ is important for the balance of nature.

3) Cross out the word that does NOT belong in the group.

1. deforestation – pollution – forest – species
2. solar energy – wind – oil – sun
3. protect – recycle – destroy – reuse
4. river – lake – mountain – ocean
5. ecologist – scientist – tree – researcher

4) Complete the table. Fill in the missing forms.

Verb	**Noun**	**Adjective**
to pollute	___	___
to conserve	___	___
to sustain	___	___
___	environment	environmental
to damage	___	___
to protect	___	___

5) Choose the correct option to complete each sentence.

1. The ___ of the ocean has increased in recent decades.
   a) pollution
   b) conserve
   c) recycle
2. We must reduce the use of plastic to help the ___.
   a) biodiversity
   b) environment
   c) extinction
3. A polar bear's ___ is quickly disappearing due to climate change.
   a) sustainability
   b) ecosystem
   c) habitat
4. Solar panels are a good example of ___ energy.
   a) fossil
   b) renewable
   c) wasteful
5. Deforestation causes a serious loss of ___.
   a) plants
   b) biodiversity
   c) resources

6) Choose one of the words (e.g. "ecosystem" or "biodiversity") and create a word map:

- Definition
- Synonyms
- Real-world example
- Word family (verb, noun, adjective)
- Sentence with the word

7) Write 5 sentences using **at least 5 of the vocabulary words**.

Example:

We must protect natural habitats to save endangered species and keep ecosystems balanced.

Grammar Point

Present Simple, Present Continuous, Present Perfect

Tense	When to Use	Example Sentence
Present Simple	Facts, habits, routines	Ecologists study nature.

Present Continuous	Actions happening now, temporary actions	We are testing soil samples.
Present Perfect	Unspecified past, results now, experience	The team has found rare plants.

1) Complete the sentences using the correct form of the verb in brackets.

1. Ecology ___ (study) the relationship between organisms and the environment.
2. Right now, ecologists ___ (collect) data about air pollution in urban areas.
3. The world's temperature ___ (rise) significantly in the last 50 years.
4. Many animals ___ (lose) their habitats due to deforestation.
5. At the moment, we ___ (try) to develop more sustainable energy sources.
6. Ecologists often ___ (work) in the field to observe ecosystems.
7. In recent decades, humans ___ (cause) major changes in the environment.
8. Some countries ___ (not/do) enough to reduce pollution.
9. Rivers and lakes ___ (become) more polluted in recent years.
10. Every year, scientists ___ (publish) new studies about climate change.

2) Each sentence contains a mistake with verb tense. Find and correct it.

1. Ecologists are usually working in forests and mountains.
2. The climate changes very quickly during the last decade.
3. People using more renewable energy these days.
4. Biodiversity has decreased because humans cut forests.
5. Pollution is increased in most big cities.

3) Write one sentence in each tense form using vocabulary from the text.

- **Present Simple** (a fact):
  _____
- **Present Continuous** (an action happening now):
  _____
- **Present Perfect** (a recent or life experience):
  _____

Discussion and Writing Point

Write a short paragraph (5–6 sentences):

How can ecological knowledge help solve environmental problems in your country or region? Use these words in your writing:
ecosystem, protect, pollution, biodiversity, should/must

Additional Reading for Individual Work

Text 1

Ecology

Ecology is a branch of biology that focuses on the relationships between living organisms and their physical environment. These relationships can be complex and dynamic, involving plants, animals, microorganisms, soil, water, air, and sunlight. Ecologists study how organisms interact with one another — for example, how predators and prey affect each other's populations — and how they are influenced by non-living elements such as climate or geography.

The word "ecology" comes from the Greek word *oikos*, meaning "home", and *logos*, meaning "study". In other words, ecology is the study of our natural home — Earth — and everything that lives in it. It looks at how ecosystems function and how changes in one part of the system can affect the entire environment.

Ecological studies are essential today, especially as the planet faces serious environmental challenges. Issues such as climate change, habitat loss, air and water pollution, and the extinction of species are closely connected to the balance of ecosystems. For example, when forests are cut down, not only do trees disappear, but also the animals that live there lose their homes, and the amount of carbon absorbed from the atmosphere decreases, contributing to global warming.

Ecologists do not only study nature; they also provide solutions. By understanding how ecosystems work, they help governments, businesses, and communities make better decisions about land use, resource management, and conservation. For instance, restoring wetlands or planting native trees in damaged areas can improve biodiversity and protect against floods.

In everyday life, anyone can think ecologically. This means being aware of how our actions — like driving, consuming, or wasting — affect the environment. Even small efforts such as recycling, saving energy, or supporting local food producers can contribute to a healthier planet.

Vocabulary Practice:

Match each word with its definition, then use it to complete the sentences.

1. biodiversity
2. ecosystem
3. predator
4. conservation
5. extinction

6. habitat
7. climate
8. pollution

Definitions:
a) the natural home of a plant or animal
b) the disappearance of a species forever
c) the protection of nature and wildlife
d) harmful substances in the air, water, or land
e) the variety of living organisms in an area
f) an animal that hunts other animals
g) the usual weather patterns of an area
h) a system where living and non-living things interact

Now complete the sentences:

1. The Arctic ___ is changing quickly due to rising temperatures.
2. Tigers are ___ that play a key role in forest ecosystems.
3. Deforestation reduces ___ and harms many species.
4. Oceans are becoming more dangerous because of plastic ___.
5. Bees, birds, and insects share the same forest ___.
6. The loss of one species can affect the whole ___.
7. The dodo is a famous example of human-caused ___.
8. National parks are important for the ___ of rare plants and animals.

Text 2

Human Impact on Nature

Human activities have greatly affected the natural environment over the past few centuries. As the population has grown, so has the need for food, water, energy, and space. Unfortunately, this often comes at the expense of forests, rivers, oceans, and wildlife. People cut down trees to build cities and roads, pollute water with chemicals, and burn fossil fuels that release harmful gases into the atmosphere.
One major impact is deforestation. Forests are home to thousands of plant and animal species, but they are being destroyed to make room for agriculture, mining, and urban development. This leads to habitat loss and a decrease in biodiversity. Many species are now endangered because they no longer have safe places to live or enough food to survive.
Another serious problem is climate change, which is caused mainly by the burning of coal, oil, and gas. These fossil fuels produce carbon dioxide, a greenhouse gas that

traps heat in the Earth's atmosphere. As a result, global temperatures are rising. This affects weather patterns, causes glaciers to melt, and leads to more extreme natural disasters such as floods, droughts, and wildfires.
Water pollution is also a serious issue. Factories, farms, and households often dump waste into rivers and seas. This harms aquatic life and can also affect human health. Plastic pollution, in particular, has become a global crisis. Sea turtles, birds, and fish often mistake plastic for food, which can be deadly.
Despite these challenges, people are starting to understand how their actions impact the environment. Many governments, organizations, and individuals are working to reduce damage and promote more sustainable lifestyles. They support reforestation, protect endangered species, reduce emissions, and invest in clean energy.
By learning about our impact on nature, we can make smarter choices. Even small actions like using less water, recycling, and choosing public transport can help protect the Earth for future generations.

Vocabulary Practice:

Choose the correct word from the list to complete each sentence.
deforestation – biodiversity – pollution – endangered – greenhouse gases – habitat – fossil fuels – plastic

1. Burning ___ like coal and oil leads to climate change.
2. ___ animals need special protection to survive.
3. Cutting down trees results in ___ and soil erosion.
4. Oceans suffer from ___ caused by chemicals and waste.
5. The loss of ___ affects the balance of ecosystems.
6. Carbon dioxide is one of the main ___ responsible for global warming.
7. A ___ is the natural home of a plant or animal.
8. Sea creatures often mistake ___ for food, which can kill them.

Text 3

Sustainable Living: Small Changes, Big Results

Sustainable living means making daily choices that help protect the environment and reduce the negative impact of human activities. It focuses on using resources more efficiently and avoiding waste, so that future generations can enjoy a clean and healthy planet. Although large-scale changes are necessary, individuals can also make a difference through small but meaningful actions.
One of the easiest ways to live more sustainably is to reduce energy use. Turning off lights when you leave a room, unplugging electronic devices, and using energy-saving bulbs can all lower electricity consumption. In colder seasons, wearing warmer clothes indoors instead of turning up the heating can help save energy too.

Water is another important resource. Many people use more water than they actually need. Simple habits like fixing leaks, turning off the tap while brushing your teeth, and using a broom instead of a hose to clean outdoor spaces can help conserve water.
Food choices also matter. A lot of energy is used to produce, transport, and package food. Buying local products, eating more plant-based meals, and reducing food waste can make your lifestyle more sustainable. Composting food scraps instead of throwing them away is another way to help the environment.
Transportation is a major source of air pollution and greenhouse gas emissions. Walking, cycling, carpooling, or using public transport instead of driving alone reduces traffic and pollution. For longer distances, taking trains instead of planes is often a greener choice.
Reducing plastic use is also important. Many everyday items are made of plastic and used only once. Replacing single-use plastics with reusable bags, bottles, and containers is a simple but powerful change.
Living sustainably doesn't mean making huge sacrifices. It means thinking more carefully about how our actions affect the planet and making smarter, more responsible decisions. When more people adopt eco-friendly habits, the positive effects grow — just like planting a seed and watching it become a tree.

Vocabulary Practice:

Complete each sentence by forming a word from the one given in brackets.

1. ___ energy bulbs use less power than traditional ones. (economy)
2. Taking the bus or walking helps reduce air ___. (pollute)
3. We should try to live in a more ___ way. (sustain)
4. ___ water is one of the easiest ways to protect natural resources. (conserve)
5. You can help the planet by reducing ___ waste. (house)
6. Composting is a good method of ___ food waste. (cycle)
7. The ___ of plastic bags has become a serious issue. (produce)
8. Buying vegetables from local farms supports ___ farming. (locate)

Text 4

Renewable Energy: A Greener Future

Energy powers our daily lives — from heating homes and running appliances to fueling transportation and industries. Traditionally, much of this energy has come from fossil fuels like coal, oil, and natural gas. However, these sources are limited and cause serious environmental problems, including air pollution and climate

change. As a result, renewable energy has become a crucial alternative for a cleaner and more sustainable future.

Renewable energy comes from natural sources that are constantly replenished. These include sunlight, wind, water, geothermal heat, and biomass. Unlike fossil fuels, renewable energy does not run out and produces little or no greenhouse gases, making it much better for the planet.

Solar energy is captured using solar panels, which convert sunlight into electricity. It is one of the fastest-growing renewable energy sources worldwide. Wind energy is produced by wind turbines that turn wind into electrical power. Hydropower uses the energy of moving water, usually from rivers or dams, to generate electricity. Geothermal energy takes heat from inside the Earth, while biomass energy comes from organic materials like plants and waste.

Using renewable energy helps reduce pollution and slow global warming. It also decreases dependence on fossil fuels, which are often imported from other countries. Investing in renewable technologies can create new jobs and support economic growth.

However, there are challenges. Solar and wind energy depend on weather conditions and may not always be available. Building renewable energy infrastructure can be expensive. Despite these issues, the benefits are clear, and many countries are increasing their use of clean energy every year.

Individuals can support renewable energy by choosing green electricity plans, installing solar panels, or advocating for sustainable energy policies. Together, these efforts will help protect the environment and create a greener future for all.

Vocabulary Practice:

Complete the sentences with the correct word from the box:
solar – wind – biomass – geothermal – hydropower – pollution – fossil fuels – electricity

1. ___ energy comes from the sun and is converted by solar panels.
2. ___ turbines use air movement to create power.
3. ___ energy uses heat from inside the Earth.
4. Plants and organic waste provide ___ energy.
5. Dams and rivers generate ___ energy by moving water.
6. Burning ___ releases carbon dioxide and causes climate change.
7. Renewable energy helps reduce ___.
8. Solar, wind, and hydropower are sources of clean ___.

Unit 2

Food Chains and the Role of Living Things

Food chains are one of the most important concepts in ecology because they show how energy moves through an ecosystem. Every living organism depends on others for food and energy, creating a complex network of relationships. At the base of every food chain are **producers**, which are mainly plants and algae. These organisms **can** make their own food through a process called photosynthesis. During photosynthesis, plants use sunlight, water, and carbon dioxide from the air to produce glucose and oxygen. This process is essential because it provides energy not only for the plants themselves but also for all other organisms in the food chain.

Producers **must** have sunlight to perform photosynthesis, and without it, they cannot survive. They are the foundation of the ecosystem, as they provide the energy necessary for other living beings. Animals that **can't** make their own food are called **consumers**. These animals depend on producers or other consumers for energy.

There are different types of consumers. **Herbivores** eat only plants. Examples include deer, rabbits, and caterpillars. **Carnivores** eat other animals; wolves, hawks, and lions are carnivores. Some animals are **omnivores**, meaning they eat both plants and animals; bears and humans fall into this category. Each consumer **should** have a role to maintain the balance in nature. If one consumer disappears, it can affect many other organisms in the ecosystem.

At the end of the food chain are **decomposers**, such as fungi, bacteria, and some insects. Decomposers **can** break down dead plants and animals, turning them into nutrients that return to the soil. These nutrients are then absorbed by producers, completing the cycle. Without decomposers, dead material would pile up, and nutrients would not recycle, harming the whole ecosystem.

Humans play a significant role in food chains and ecosystems. We **must** protect these natural processes because human activities like pollution, deforestation, and climate change disrupt ecosystems. For example, cutting down forests removes many producers and habitats for consumers. Pollution contaminates water and soil,

affecting all living organisms. Climate change can alter the temperature and weather, making it hard for some species to survive.

We **should** take actions to protect the environment. Recycling, saving water, reducing waste, planting trees, and protecting natural habitats are all important steps. People **can** also help by learning about ecosystems and spreading awareness. Everyone's effort is necessary to keep food chains and ecosystems healthy.

By understanding food chains, we can see how every living thing is connected. Energy moves from the sun to producers, then to consumers, and finally to decomposers. This cycle depends on the balance between different organisms. If one part disappears, it affects the whole system. To maintain a healthy planet, humans **must** act responsibly and protect nature.

Vocabulary Point

Producer — an organism that makes its own food
Consumer — an animal that eats other organisms
Herbivore — an animal that eats plants
Carnivore — an animal that eats meat
Omnivore — an animal that eats both plants and animals
Decomposer — organisms that break down dead matter
Photosynthesis — the process plants use to make food from sunlight
Ecosystem — all living things and their environment
Recycle — to process used materials so they can be used again
Pollution — harmful substances in the environment

Exercises

1) Match the words (A) with the correct definitions (B).

A

1. Producer
2. Consumer
3. Herbivore
4. Carnivore
5. Omnivore
6. Decomposer

7. Photosynthesis
8. Ecosystem

B

a) An animal that eats plants only

b) Organisms that break down dead plants and animals

c) An organism that makes its own food

d) An animal that eats other animals

e) An animal that eats both plants and animals

f) An animal that eats plants or animals

g) The process plants use to make food from sunlight

h) All living things and their environment

2) Fill in the blanks with the correct vocabulary word from the list:

Producer – Consumer – Herbivore – Carnivore – Omnivore – Decomposer – Photosynthesis - Ecosystem

1. A ___ makes its own food using sunlight.
2. A deer is a ___ because it eats only plants.
3. A lion is a ___ because it eats other animals.
4. Humans are ___ because they eat plants and animals.
5. Fungi are ___ that recycle nutrients by breaking down dead matter.
6. ___ is how plants create food using sunlight.
7. The rainforest is a complex ___.

3) Write True **or** False **next to each statement.**

1. Producers must have sunlight to perform photosynthesis.
2. Carnivores can make their own food.
3. Omnivores only eat plants.
4. Decomposers help recycle nutrients in an ecosystem.
5. Consumers can be herbivores, carnivores, or omnivores.
6. Humans do not affect food chains and ecosystems.

4) Choose the correct word to complete the sentence:

1. Plants use (photosynthesis / decomposition) to make food.
2. A (herbivore / producer) eats only plants.
3. Decomposers break down (living / dead) matter.
4. An ecosystem includes all living things and their (habitat / photosynthesis).
5. Animals that eat both plants and animals are called (herbivores / omnivores).

5) Use the base word in parentheses to form the correct word to complete the sentence.

1. Plants perform ___ (produce) using sunlight.
2. Humans have an important ___ (protect) role in ecosystems.
3. Many animals are ___ (consume) in the food chain.
4. ___ (decompose) return nutrients to the soil.
5. Pollution causes ___ (harm) to living things.

Grammar Point

Modal Verbs (can, must, should)

Modal verbs help us express ability, necessity, or advice.

Modal Verb	Meaning	Example
can	Ability or possibility	Plants **can** make their own food.
must	Obligation or necessity	Humans **must** protect nature.
should	Advice or recommendation	We **should** recycle to save water.

Exercises

1) Complete the sentences with can**,** must**, or** should**.**

1. Producers ___ make their own food using sunlight.
2. Carnivores ___ hunt other animals to eat.
3. Humans ___ protect ecosystems to keep food chains alive.
4. We ___ avoid pollution to save animals.

5. Decomposers ___ break down dead plants and animals.
6. People ___ learn about nature to help protect it.
7. You ___ plant more trees to help the environment.
8. Animals ___ adapt to changes in their habitat to survive.
9. Herbivores ___ eat only plants.
10. Animals ___ recycle nutrients by decomposing dead matter.
11. Some animals ___ be omnivores, eating both plants and animals.
12. Plants ___ live without sunlight for long.

2) Rewrite the sentences using the modal verb in brackets:

1. Plants have the ability to perform photosynthesis. (can)
   Plants ___ perform photosynthesis.
2. It is important to protect the environment. (must)
   We ___ protect the environment.
3. It is a good idea for people to reduce pollution. (should)
   People ___ reduce pollution.
4. It is possible that some animals eat both plants and animals. (might)
   Some animals ___ eat both plants and animals.
5. Animals are able to adapt to their environment. (can)
   Animals ___ adapt to their environment.
6. Humans have a duty to take care of nature. (must)
   Humans ___ take care of nature.
7. It is advisable to save water in dry areas. (should)
   People ___ save water in dry areas.
8. Some ecosystems may change over time. (might)
   Ecosystems ___ change over time.

3) Complete the sentences using the correct form of the modal verb + base verb:

1. Decomposers ___ (help) recycle nutrients in the soil.
2. You ___ (not harm) producers because they are the base of the food chain.
3. Herbivores ___ (only eat) plants.
4. Humans ___ (take care) of ecosystems for future generations.
5. Carnivores ___ (hunt) other animals for food.
6. Plants ___ (not survive) without sunlight.
7. People ___ (protect) endangered species.

8. We ___ (reduce) pollution to save the environment.

4) Make questions using modal verbs about the food chain and answer them:

1. ___ herbivores eat meat? (can)
2. ___ humans protect nature? (should)
3. ___ decomposers live in soil? (might)
4. ___ carnivores eat plants? (must not)
5. ___ producers survive without sunlight? (can)
6. ___ animals adapt to new habitats? (can)
7. ___ people reduce pollution? (should)
8. ___ ecosystems change over time? (might)

5) Write short answers to these questions using modal verbs:

1. Can producers make food?
2. Must humans protect the environment?
3. Should we reduce pollution?
4. Might some animals be omnivores?
5. Can decomposers help ecosystems?
6. Should people save water?
7. Must we avoid harming animals?
8. Can ecosystems change?

Discussion and Writing Point

Writing Task

Write a short paragraph (5-7 sentences) about what humans **can**, **must**, and **should** do to protect food chains and ecosystems.

Speaking Task

Discuss with a partner:

- What **can** animals do to survive in different environments?
- What **must** humans do to protect food chains?
- What **should** people do every day to help the environment?

Additional Reading for Individual Work

Text 1

The Importance of Pollinators

Pollinators are animals that help plants reproduce by transferring pollen from one flower to another. Common pollinators include bees, butterflies, birds, and some bats. These animals **can** fly from flower to flower, collecting nectar and spreading pollen in the process. This helps plants produce fruits, seeds, and new plants. Without pollinators, many plants **must** rely on the wind or other less effective methods to reproduce, which would reduce plant diversity and the food available to consumers. Pollinators **should** be protected because they play a crucial role in food chains and ecosystems. When pollinator numbers decrease due to pesticides, habitat loss, or climate change, the entire ecosystem suffers. People **can** help pollinators by planting flowers that provide nectar and pollen and avoiding harmful chemicals in gardens and farms.

Understanding the role of pollinators shows how different species depend on each other. Protecting pollinators means supporting food chains and ensuring a healthy environment for all living things.

Vocabulary Practice

Match the words to their meanings:

1. Pollinator
2. Pollen
3. Reproduce
4. Pesticide
5. Nectar

a) A chemical used to kill insects

b) A living thing that moves pollen between plants

c) Tiny grains that help plants make seeds

d) Sweet liquid inside flowers that attracts pollinators

e) To produce offspring or new plants

Fill in the blanks using the words above:

1. Bees are important ___ because they move pollen.
2. Flowers produce ___ to attract pollinators.
3. Plants use ___ to reproduce and create new seeds.
4. Farmers use ___ carefully to avoid harming pollinators.
5. Plants ___ by producing seeds that grow into new plants.

Additional Comprehension Questions

1. What animals are pollinators?
2. Why are pollinators important for plants?
3. How can people help protect pollinators?

Text 2

Water in the Food Chain

Water is essential for all living organisms and is found everywhere in ecosystems. Plants **must** have water to carry out photosynthesis and grow. Animals **can** drink water or get it from the food they eat. Some animals **should** drink water every day to stay healthy, while others get most of their water from their environment.

Water moves through the food chain as animals drink it, and plants absorb it from the soil. Clean water is necessary for all life forms, but water pollution from chemicals, waste, and other harmful substances threatens ecosystems. Polluted water **can** make animals and plants sick or cause death.

People **must** protect water sources by avoiding pollution and conserving water. Actions such as reducing plastic waste, using fewer chemicals, and protecting

wetlands help keep water clean. Protecting water is crucial for the health of food chains and ecosystems.

Vocabulary Exercise

Fill in the blanks with the correct word: *polluted, absorb, survive, ecosystem, conserve*

1. All living things in an ___ depend on water.
2. Plants ___ water through their roots.
3. Animals need clean water to ___.
4. Water that is ___ can harm animals and plants.
5. People should ___ water to protect the environment.

Comprehension Questions

1. Why is water important in food chains?
2. How does water pollution affect living things?
3. What can people do to protect water sources?

Unit 3

Air Pollution

Air pollution is the presence of substances in the air that are harmful to humans, other living beings, or the environment. Pollutants can be gases like ozone or nitrogen oxides or small particles like soot and dust. It affects both outdoor air and indoor air. Natural sources of air pollution include wildfires, dust storms, and volcanic eruptions. Indoor air pollution is often caused by the use of biomass (e.g., wood) for cooking and heating. Outdoor air pollution comes from some industrial processes, the burning of fossil fuels for electricity and transport, waste management, and agriculture. Many of the contributors to local air pollution, especially the burning of fossil fuels, also cause greenhouse gas emissions that cause global warming.

Air pollution causes around 7 or 8 million deaths each year. It is a significant risk factor for a number of diseases, including stroke, heart disease, chronic obstructive

pulmonary disease, asthma, and lung cancer. Particulate matter is the most deadly, both for indoor and outdoor air pollution. Ozone affects crops, and forests are impacted by the pollution that causes acid rain. Overall, the World Bank has estimated that welfare losses (premature deaths) and productivity losses (lost labour) caused by air pollution cost the world economy over $8 trillion per year.
Various technologies and strategies reduce air pollution. Key approaches include clean cookers, improved waste management, industrial scrubbers, electric vehicles, and renewable energy. National air quality laws have often been effective, notably the 1956 Clean Air Act in Britain and the 1963 US Clean Air Act.
International efforts have had mixed results: the Montreal Protocol almost eliminated harmful ozone-depleting chemicals, while international action on climate change has been less successful.

(From Wikipedia, the free encyclopedia)

Vocabulary Point

Word / Phrase - Definition
Pollutant - harmful substance in the environment

Soot - fine black particles from burning

Biomass - organic material used for fuel

Fossil fuels - coal, oil, gas used for energy

Premature death - dying earlier than expected

Particulate matter - tiny particles in the air that can be inhaled

Scrubber - a device that removes pollutants from gases

Renewable energy - from natural, reusable sources

Acid rain - rain made acidic by air pollutants

Legislation - laws created by governments

Particulate matter - tiny solid or liquid particles suspended in air

Chronic obstructive pulmonary disease (COPD) - a long-term lung disease that makes breathing difficult

Welfare loss - economic cost due to reduced quality of life or death

Greenhouse gases - gases that trap heat in the atmosphere and cause climate change

Exercises

1) Match the words with their correct definitions.

A. Particulate matter
B. Scrubber
C. Renewable energy
D. Biomass
E. Pollutant
F. Welfare loss
G. Greenhouse gases
H. COPD

1. A fuel source derived from plant or animal waste
2. A device used in factories to clean harmful chemicals from smoke
3. Tiny solid or liquid substances in the air that are dangerous to health
4. A disease that makes breathing difficult over a long period
5. The economic effect of early death or illness
6. A substance that contaminates air or water
7. Gases that contribute to global warming
8. Energy from naturally replenished sources

2) Use the correct word from the box to complete the sentences.

(biomass, scrubbers, ozone, pollutants, renewable, COPD, acid rain, productivity)

1. Old stoves that use _____ contribute to indoor air pollution.
2. Factories now use _____ to clean emissions before releasing them.
3. _____ affects crops and damages forests.
4. People with _____ often struggle to breathe properly.
5. _____ like soot can travel deep into human lungs.
6. Solar and wind energy are examples of _____ energy.
7. _____ is formed when certain chemicals react in the atmosphere.
8. Air pollution also reduces _____ in the workforce.

3) Find words or phrases in the text that mean:

1. Cause (verb)
2. Source of danger
3. To affect negatively
4. Amount of money lost
5. Successful (adjective)

Grammar Point: Modal Verbs (necessity, advice, possibility)

Modal Verb	Use	Example
must	strong necessity or obligation	We **must** reduce emissions.
should	advice	People **should** avoid burning trash.
can	ability or possibility	Pollution **can** cause health problems.
might	possibility	Forests **might** be damaged by acid rain.

1) Complete with the correct modal verb: must / should / can / might

1. We ___ take action against air pollution immediately.
2. Clean cookstoves ___ help reduce indoor air pollution.
3. Factories ___ release harmful chemicals.
4. People ___ be aware of the dangers of poor air quality.
5. Renewable energy ___ replace fossil fuels in the future.
6. We ___ not ignore the effects of acid rain.
7. Children ___ develop asthma from polluted air.
8. The government ___ enforce stricter laws.

2) Choose the Correct Modal Verb:

Choose the best modal verb for each sentence: (must / should / can / might / don't have to)

1. Countries _____ cooperate internationally to reduce emissions.
2. People in rural areas _____ use biomass for cooking if no alternatives exist.
3. Using electric vehicles _____ significantly reduce air pollution.
4. We _____ ignore the effects of air pollution any longer.
5. Farmers _____ burn crop residues; there are better solutions.

3) Rewrite the following statements using an appropriate modal verb.

Example:
It is necessary to wear a mask in polluted cities.
→ You **must** wear a mask in polluted cities.

a. It is not necessary to use fossil fuels anymore.
b. It is a good idea to improve waste management.
c. It is possible that air pollution will increase.
d. It is important to invest in clean energy.
e. Sometimes, pollution comes from natural causes.

Discussion and Writing Point

Speaking Practice:

1. What are the main causes of air pollution in your country?
2. What can individuals do to reduce air pollution?
3. How do you think air pollution will change in the next 50 years?
4. What technologies or actions should governments support to reduce pollution?
5. Do you believe individuals can make a big difference in fighting air pollution? Why or why not?
6. What role do international agreements play in protecting air quality?

Writing Practice:

1. Write a short essay (100–150 words) about how air pollution affects health.
2. Describe a solution to reduce air pollution in urban areas.
3. Describe how renewable energy can help both climate and air quality.
4. Explain the effects of indoor air pollution and how it can be reduced.

Additional Reading for Individual Work

Text 1: The Impact of Air Pollution on Children's Health

Air pollution poses serious health risks for everyone, but children are especially vulnerable. Because their lungs are still developing, they breathe more rapidly and often spend more time outdoors than adults. This increases their exposure to harmful pollutants like nitrogen dioxide (NO_2), ozone (O_3), and particulate matter (PM). Exposure to polluted air in early childhood has been linked to reduced lung function, increased respiratory infections, and the development of asthma. In some cases, it may also impair brain development and affect learning ability. Prenatal exposure — when a baby is still in the womb — can also result in low birth weight or premature birth.

Children who live in urban areas with heavy traffic are particularly at risk. Vehicles emit nitrogen oxides and fine particles that can easily enter the lungs and bloodstream. Schools and playgrounds located near busy roads often show higher levels of air pollution, putting children at constant risk.

In indoor environments, air pollution is caused by smoke from cooking or heating with solid fuels like coal or wood. This is especially common in low-income countries, where clean energy is less accessible. Prolonged exposure to indoor pollutants can lead to chronic respiratory problems and even early death.

Efforts to protect children include improving air quality through stricter emissions regulations, planting more trees in urban areas, and promoting clean household energy solutions. Some schools are also using air purifiers or limiting outdoor activities during high-pollution days.

While individual actions matter, large-scale policy changes are essential to ensure long-term improvements in air quality and health outcomes for future generations.

Vocabulary from the text

Vulnerable – at higher risk of harm

Exposure – contact with something harmful

Impair – to weaken or damage

Prenatal – before birth

Emissions – substances released into the air

Exercises

1. Match the words with their meanings:

a) Vulnerable
b) Exposure
c) Emissions
d) Prenatal
e) Impair

1. Harmful substances sent into the air
2. Before a baby is born
3. To make something weaker
4. Being unprotected or at risk
5. Coming into contact with something

2. Complete the sentences:

1. Children are more _____ to air pollution than adults.
2. _____ exposure to pollution can affect brain development.
3. Heavy traffic increases the level of _____ in the city.
4. Smoke from solid fuels can _____ lung function.
5. _____ development is affected by environmental conditions.

Text 2:

Air Pollution and Climate Change

Air pollution and climate change are closely linked. Many of the same sources that cause air pollution, such as vehicles, power plants, and factories, also release greenhouse gases like carbon dioxide (CO_2) and methane (CH_4). These gases trap heat in the atmosphere, contributing to global warming.

Particulate matter, especially black carbon, has both short-term and long-term effects. In the short term, it damages health by entering the lungs and bloodstream. In the long term, it absorbs sunlight and contributes to the melting of ice and snow in the Arctic and mountain regions, speeding up climate change.

Another pollutant, ground-level ozone, is harmful when inhaled and also a potent greenhouse gas. Unlike the protective ozone layer high in the atmosphere, ground-level ozone is formed by chemical reactions between nitrogen oxides and volatile organic compounds in sunlight. It's a major component of smog and can harm plants, animals, and humans.

Reducing air pollution helps mitigate climate change. Switching to renewable energy sources like solar and wind, using public transportation, and adopting energy-efficient technologies can cut emissions. International agreements like the Paris Agreement aim to limit global temperature rise and reduce air pollutants at the same time.

Actions to improve air quality often result in dual benefits: better health for people and a more stable climate. Understanding the connection between air quality and the global climate is essential for creating effective environmental policies.

Vocabulary from the Text

Greenhouse gases – gases that trap heat in the atmosphere

Black carbon – a type of particulate matter from incomplete combustion

Ground-level ozone – harmful ozone formed near the earth's surface

Mitigate – to make less severe

Smog – a mix of smoke and fog that reduces air quality

Exercises

1. Match the words with their definitions:

a) Greenhouse gases
b) Mitigate
c) Smog
d) Ground-level ozone
e) Black carbon

1. A pollutant that absorbs sunlight and worsens warming
2. Reduce the intensity or seriousness of something
3. Ozone near the surface, harmful to breathe
4. Visible air pollution caused by a mix of fog and smoke
5. Gases that contribute to global warming

2. Complete the sentences:

1. _____ is a dangerous component of polluted air and affects the Arctic.
2. Vehicles emit both air pollutants and _____ that worsen climate change.
3. The formation of _____ increases during sunny days in urban areas.
4. Cities often experience _____ during hot and dry seasons.
5. Planting trees can help _____ the effects of air pollution.

Text 2:

Indoor Air Pollution

Indoor air pollution is often overlooked but is one of the deadliest types of environmental risk. It primarily occurs in low-income households that rely on traditional cooking and heating methods, such as burning wood, charcoal, or animal dung. These materials release smoke and fine particles into the air, which accumulate inside homes without proper ventilation. Women and children are the most affected, as they spend more time indoors. Common illnesses caused by indoor pollution include respiratory infections, chronic obstructive pulmonary disease (COPD), and eye irritation. The World Health Organization recommends using clean fuels like electricity, biogas, or solar power, along with improved cookstoves that vent smoke outside. Governments and NGOs are working to distribute affordable alternatives to reduce health risks and environmental damage.

Vocabulary Practice (choose the correct word):

1. Many families still cook using ___ fuels like wood or charcoal.
2. Poor ___ leads to high levels of smoke inside homes.
3. ___ are encouraged to switch to clean energy.
4. Indoor air pollution causes serious ___ problems.
5. New cookstoves help ___ smoke away from the kitchen.

Text 3:

Air Quality and Urban Life

Cities are hotspots for air pollution due to high population density and heavy traffic. Vehicle emissions, industrial activity, and construction dust are major contributors. In many urban areas, air quality is measured by the Air Quality Index (AQI), which provides information on how safe the air is to breathe. High AQI levels mean poor air quality, which can be dangerous for people with respiratory conditions. Some cities have taken steps to improve air quality by introducing low-emission zones, promoting public transport, and planting more trees. Green roofs and vertical gardens also help absorb pollutants and cool the environment. However, rising urbanization continues to pose challenges.

Vocabulary Practice (fill in the blanks):

1. The ___ shows how clean or polluted the air is.
2. Heavy ___ is one of the main causes of urban pollution.
3. Trees and plants help to ___ harmful particles.
4. Some cities use ___ to improve the urban climate.
5. People with asthma are affected by poor ___ quality.

Unit 4

Water Pollution: A Global Threat

Water pollution is one of the most pressing environmental challenges of our time. It refers to the contamination of natural water bodies such as rivers, lakes, oceans, and groundwater, which leads to reduced water quality and harmful effects on living organisms and human health. Water pollution can be caused by many sources, both natural and human-made, but human activity remains the main contributor.

There are two main types of water pollution. The first is organic pollution, which comes from microorganisms like bacteria and viruses. These are often introduced

through excrement, animal waste, and decaying plant matter. The second is chemical pollution, which results from human activities and includes toxic substances like heavy metals, pesticides, pharmaceuticals, and industrial waste.

One major source of water pollution is untreated sewage. In many parts of the world, wastewater from homes and industries is released into the environment without proper treatment. According to the United Nations, over 80% of global wastewater is discharged without being cleaned or reused.

Agriculture also plays a big role in polluting water. Fertilizers, pesticides, and other chemicals used in farming often run off into nearby rivers and lakes. Livestock farms contribute as well, through manure and methane emissions. In aquaculture (fish farming), uneaten food and chemicals pollute the water directly, leading to eutrophication — an excessive growth of algae that reduces oxygen levels and harms aquatic life.

Deforestation and urban development indirectly contribute to water pollution. When trees are cut down and the land is paved, water flows more quickly over the surface instead of soaking into the soil. This fast runoff carries pollutants into water bodies without being filtered naturally by the ground.

Industries release huge amounts of toxic waste into freshwater systems. These pollutants often include acids, hydrocarbons, and heavy metals. Even air pollution contributes to water pollution. Acid rain, caused by the burning of fossil fuels, falls into lakes and rivers, harming ecosystems.

Everyday garbage, such as plastic, glass, rubber, and food waste, also ends up in oceans and rivers. These materials take years to decompose and can injure or kill marine animals. Radioactive waste, from sources like nuclear power plants and mining, is another dangerous pollutant that can stay in the environment for thousands of years.

The consequences of water pollution are severe. It reduces biodiversity by destroying aquatic ecosystems and threatening marine life. Polluted water may change color, develop unpleasant odors, and support harmful bacteria and algae. Thermal pollution, caused by hot water released from factories or power stations, increases water temperature and reduces oxygen, making life difficult for aquatic organisms.

In terms of human health, water pollution can lead to deadly diseases like cholera, typhoid, dysentery, and skin infections. Millions of people around the world do not have access to clean drinking water, and waterborne illnesses remain a major cause of death in developing countries.

Efforts to combat water pollution include better waste treatment, regulations on industrial discharge, sustainable farming practices, and greater public awareness. If we want to protect our environment and our health, reducing water pollution must be a global priority.

Vocabulary Point

Contamination – the process of making something impure or harmful

Runoff – water that flows over the surface, carrying substances with it

Eutrophication – excessive nutrients in water causing algae growth

Manure – animal waste used as fertilizer

Thermal pollution – rise in water temperature due to human activity

Sewage – waste water from homes and industry

Discharge – the release of a substance into the environment

Degrade – break down or deteriorate

Fertilizer – a chemical substance that is spread on land or soil to make plants grow better

Deforestation – the action of clearing a wide area of trees

Dystrophication – the process by which a body of water <u>becomes</u> dystrophic

Excrement – the solid waste that is released from the bowels of a person or animal

Wastewater – water that is not clean because it has already been used

Dehydration – the loss or removal of water from something

Livestock – farm animals regarded as an asset

Exercises

1. Match the words with their meanings:

a) Contamination

b) Manure

c) Eutrophication

d) Discharge

e) Thermal pollution

f) Runoff

g) Sewage

1. Excess nutrients in water that cause algae growth
2. Animal waste used in farming
3. Dirty water from toilets, sinks, and factories
4. Water that flows over land, often carrying pollutants
5. The act of releasing something into nature
6. Warming of water due to industrial activity
7. The act of polluting something

2. Complete the sentences:

1. _____ from farms carries fertilizers into nearby rivers.
2. When factories _____ hot water, it can harm fish populations.
3. Poorly treated _____ can spread dangerous diseases.
4. _____ often appears as green algae covering water surfaces.
5. Using _____ as fertilizer can lead to organic pollution.
6. _____ of rivers with chemicals threatens aquatic life.
7. The _____ of water leads to biodiversity loss and health issues.

3. Complete the sentences with the words:

eutrophication, fertilizering, contamination, deforestation, dehydration

1. The _____ of water makes it unsafe to drink.
2. Cutting down forests leads to soil erosion and _____.

3. Excess _____ used in farming can end up in rivers.
4. _____ can lead to the overgrowth of algae in lakes.
5. People without access to clean water may suffer from _____.

4. Choose the synonyms to the words:

1. **Excrement**
   a) Clean water
   b) Animal waste
   c) Household product
2. **Runoff**
   a) Underground water flow
   b) Wastewater from hospitals
   c) Water that flows over land
3. **Toxic**
   a) Safe
   b) Poisonous
   c) Natural
4. **Livestock**
   a) Wild animals
   b) Farm animals
   c) Marine life
5. **Thermal pollution**
   a) Pollution from noise
   b) Heating of water bodies
   c) Air pollution

Grammar Point:

Passive Voice

Examples from the text:

- "Water pollution **is caused** by many sources."
- "Wastewater **is discharged** without being treated."
- "Garbage **is deposited** into the sea."

Exercises

1. Rewrite the sentences in the passive voice:

1. Farmers use pesticides that pollute rivers.

2. Industries release toxic waste into lakes.
3. People throw plastic into the sea.
4. Power plants heat the water.
5. Acid rain damages ecosystems.
6. Human activity pollutes many rivers.

2. Complete with the correct passive form:

1. Untreated sewage _____ (release) into rivers daily.
2. Water quality _____ (affect) by chemical waste.
3. Tons of plastic _____ (dump) into oceans every year.
4. Marine animals _____ (harm) by microplastics.
5. Wastewater _____ (not treat) in many countries.

3.Put the words in the correct form:

1. Many diseases _____ (cause) by water pollution.
2. Scientists _____ (study) the effects of toxic water for years.
3. People often _____ (ignore) the importance of clean water.
4. Pollution _____ (affect) aquatic ecosystems badly.
5. The United Nations _____ (report) on global water safety since 2000.

Speaking and Writing Point

Speaking:

1. What do you think is the biggest source of water pollution in your region?
2. How can schools or communities reduce water pollution?
3. Do you think governments do enough to protect water resources?
4. Describe what water pollution looks like in your region.
5. Explain why aquaculture can also pollute water.
6. How can we reduce water pollution in daily life?

Writing:

1. Write a short opinion paragraph (100–120 words):
   "Plastic is the most dangerous form of water pollution. Do you agree or disagree?"

2. Describe the water pollution problem in your country and suggest three possible solutions (120–150 words).

Additional Reading for Individual Work

Text 1:

Plastic Pollution in Oceans

Plastic pollution has become one of the most visible and dangerous forms of water pollution, especially in oceans. Every year, millions of tons of plastic enter the seas, harming marine life, contaminating water, and even ending up in the food chain.
Plastic waste mainly comes from land-based sources. Items such as plastic bags, bottles, straws, and packaging are used for a short time but can remain in the environment for hundreds of years. When not properly disposed of, this waste is carried by wind or rain into rivers and then into oceans. Storm drains and sewage systems also transport plastic waste into water bodies.
In the ocean, plastic breaks into small pieces called **microplastics**. These particles are often invisible to the naked eye but are extremely harmful. Fish and other marine animals mistake them for food, which can lead to internal injuries, poisoning, and death. Even seabirds and turtles are often found with large amounts of plastic in their stomachs.
Plastic pollution does not only affect wildlife. As microplastics enter the food chain, they can also impact human health. People who eat seafood may be consuming tiny pieces of plastic without realizing it. Some scientists believe that plastic toxins may be linked to health issues, although more research is needed.
Governments and organizations are trying to fight plastic pollution by banning single-use plastics, promoting recycling, and organizing beach clean-ups. However, much more needs to be done. Reducing our plastic use in daily life is an important step everyone can take.
If action is not taken soon, it is estimated that by 2050 there could be more plastic than fish in the ocean. This shocking prediction highlights the urgent need to protect our water sources from plastic pollution.

Vocabulary:

Visible – easily seen

Disposable – designed to be used once

Microplastics – tiny plastic particles

Toxins – harmful substances

Sewage system – network of pipes for carrying wastewater

Exercises for Text 1

1. Fill in the gaps with the correct word:

1. Tiny _____ from plastic are often eaten by marine animals.
2. Old pipes in the _____ system can carry waste to rivers.
3. Some plastic _____ can take centuries to disappear.
4. Certain _____ found in plastic may be dangerous to humans.
5. Plastic pollution is one of the most _____ environmental issues.

2. True or False?

1. Microplastics are easy to see with the human eye.
2. Plastic enters oceans only from ships.
3. Turtles can eat plastic thinking it's food.
4. Plastic cannot affect people's health.
5. Beach clean-ups help reduce pollution.

Text 2:

Industrial Wastewater and Its Dangers

Industrial wastewater is a serious source of water pollution worldwide. It is produced during industrial processes and may contain harmful chemicals, heavy metals, and other toxic substances. When this wastewater is not properly treated, it can enter rivers, lakes, and oceans, posing major environmental and health risks.

Factories from industries such as textile, paper, oil, and mining release large amounts of wastewater. This water can include substances like mercury, lead, arsenic, and various acids. These pollutants not only poison fish and other aquatic animals but also affect the soil and plants near polluted water sources.

People who drink or use contaminated water can suffer from many health problems. These include skin irritation, stomach pain, and even more serious diseases such as cancer or neurological disorders. In some areas, industrial pollution has made entire communities sick or forced people to leave their homes.

Governments in many countries require factories to treat wastewater before releasing it. However, in developing countries, the rules are often ignored or poorly enforced. Sometimes companies dump their waste secretly to avoid the cost of treatment. This illegal dumping leads to long-term damage to the environment.

There are technologies available that can help clean industrial wastewater, such as filtration, sedimentation, and chemical treatment. These systems can remove harmful substances before the water returns to nature. Unfortunately, not all factories are willing to invest in these methods.

To reduce pollution from industry, stricter laws and regular inspections are needed. Companies should be held responsible for their waste and encouraged to adopt eco-friendly technologies. Only then can we ensure clean and safe water for future generations.

Vocabulary

Wastewater – used water from homes or industry

Toxic – poisonous or harmful

Heavy metals – harmful elements like mercury or lead

Dump – to throw away waste

Filtration – a method to clean water by removing particles

Exercises for Text 2

1. Match the word to the definition:

a) Wastewater

b) Dump

c) Toxic

d) Filtration

e) Heavy metals

1. A method used to purify water
2. Dangerous elements often found in industrial waste
3. Water that has already been used
4. Poisonous to living things
5. To throw away something, especially illegally

2. Choose the correct word:

1. Factories must not _____ chemicals into rivers.
2. _____ is often needed before water can be reused.
3. Mercury and lead are examples of _____.
4. Water that smells bad is often _____.
5. Some companies avoid the cost of cleaning _____.

Unit 5

Land Pollution

Land pollution is the degradation of the Earth's surface caused by the misuse of land resources. It results from human activities that introduce harmful substances or waste materials into the soil, making it unhealthy for plants, animals, and people. Land pollution affects not only the beauty of the environment but also its ability to support life.

The main sources of land pollution include **industrial waste**, **urbanization**, **agricultural chemicals**, **mining**, and **improper waste disposal**. Factories often discharge toxic substances into nearby land areas. These include heavy metals, oils, solvents, and other hazardous chemicals. When these pollutants seep into the ground, they damage plant roots, contaminate water supplies, and enter the food chain.

Agriculture is another major contributor. The widespread use of fertilizers and pesticides contaminates the soil and affects microorganisms that maintain soil health. Over time, the excessive use of such chemicals can lead to a loss of fertility, turning productive land into barren ground.

Urban sprawl and the growth of cities also cause land degradation. As natural landscapes are replaced with roads, buildings, and parking lots, the natural soil is compacted and unable to absorb rainwater, which increases runoff and erosion. Additionally, landfills filled with household and industrial waste occupy large areas and release methane and toxic liquids into the soil.

Mining operations strip the land of its topsoil and leave behind deep scars, waste piles, and contaminated groundwater. Abandoned mines can remain polluted for decades, affecting nearby communities and wildlife.

Deforestation, while mainly associated with air and climate effects, also causes land pollution. The removal of trees exposes the soil to erosion and reduces its ability to regenerate.

The consequences of land pollution are far-reaching. Crops may not grow in polluted soil, and livestock may be harmed by toxic plants or drinking contaminated water. Human health is also at risk. Polluted land can lead to respiratory issues, skin irritations, and even cancer. Land degradation also contributes to climate change by reducing carbon storage in the soil.

To combat land pollution, governments, industries, and individuals must take action. Solutions include reducing waste production, promoting recycling and composting, enforcing stricter environmental regulations, using eco-friendly agricultural practices, and rehabilitating damaged land through reforestation and soil treatment.

Understanding and addressing land pollution is essential for ensuring a sustainable future. If we don't act, we risk losing one of our most valuable resources—our land.

Vocabulary Point

Word/Phrase-Definition

Degradation - the process of something becoming worse or weaker

Hazardous - dangerous or risky

Seep into - slowly move or flow into something

Barren - unable to produce plants or crops

Runoff - rainwater that flows over land instead of being absorbed

Landfill - a place where garbage is buried

Erosion - gradual destruction or removal of soil

Rehabilitation - the process of restoring something to its original condition

Exercises

1) **Match the words with their definitions**

(*hazardous, barren, seep into, landfill, erosion, degradation, rehabilitation, runoff*)

1. ___ Slowly entering soil or rock
2. ___ A place for buried waste
3. ___ Making something better again
4. ___ No longer able to grow crops
5. ___ Water flowing over land
6. ___ Process of soil being washed away
7. ___ Becoming worse
8. ___ Dangerous or harmful

2) Complete the sentences with the correct vocabulary word:

1. Chemicals from factories can ___ the soil and water.
2. Farming on ___ land will not produce good crops.
3. The ___ of forests causes both air and land pollution.
4. Many cities struggle to manage their ___ sites.
5. The ___ of land is a serious problem caused by overuse and pollution.
6. Heavy rain leads to ___, which washes away the topsoil.
7. If chemicals ___ the ground, they may contaminate the water.
8. The government started a ___ project to restore the polluted area.
9. Crops can't grow on ___ land with no nutrients.
10. The city built a new ___ to deal with increasing waste.
11. Some pesticides are highly ___ to both animals and humans.
12. Construction increases the amount of water ___ during storms.

Grammar Point

Conditionals (Zero, First, and Second)

Explanation

Type	**Structure**	**Use Case**	**Example**
Zero	If + Present Simple, Present Simple	General truths / scientific facts	If you pollute the soil, plants don’t grow.

First	If + Present Simple, will + base verb	Real future possibility	If we reduce waste, land pollution will decrease.
Second	If + Past Simple, would + base verb	Hypothetical/unreal situation	If people cared more, land pollution would decrease.

Exercises:

1) Complete the sentences with the correct conditional form:

1. If farmers stop using chemicals, the soil ___ (recover) over time.
2. If you ___ (burn) trash, you release harmful gases.
3. Land would be healthier if industries ___ (follow) environmental laws.
4. If everyone recycled, we ___ (have) fewer landfills.
5. If it rains heavily, the soil ___ (erode) quickly.
6. If waste continues to pile up, we ___ (lose) usable land.
7. If people cared more about nature, they ___ (not leave) rubbish in the fields.
8. If we composted food waste, we ___ (reduce) the amount sent to landfills.
9. If governments invested in recycling, the environment ___ (benefit).
10. If toxic materials leak into the ground, they ___ (pollute) the water supply.

2) **Choose the correct type of conditional (Zero, First, or Second)**:

1. If you heat plastic, it releases toxins. → Type: ___
2. If we planted more trees, the soil would be protected. → Type: __
3. If people throw garbage in nature, it will pollute the soil. → Type: ___
4. If factories stopped dumping chemicals, rivers would stay clean. → Type: ___
5. If it doesn't rain, the land will become dry. → Type: ___
6. If people are careless, pollution increases. → Type: ___
7. If there were strict fines, people would recycle more. → Type: ___
8. If farmers don't rotate crops, the soil becomes poor. → Type: ___

3) **Rewrite the sentences using conditionals**:

1. The soil is polluted because people dump waste.
   → If people didn't dump waste, the soil ___
2. We don't recycle enough, so landfills are growing.
   → If we recycled more, ___
3. The land becomes dry when there is no vegetation.
   → If there is no vegetation, ___
4. The government doesn't fund green initiatives, so pollution increases.
   → If the government funded green initiatives, ___
5. Factories release chemicals into rivers; as a result, aquatic life suffers.
   → If factories didn't release chemicals, ___
6. People burn garbage, and the air becomes toxic.
   → If people didn't burn garbage, ___

7. Children don’t learn about ecology, so they don’t value the environment.
   → If children learned about ecology, ___
8. There is no proper waste management system; therefore, illegal dumping continues.
   → If there were proper waste management, ___

Speaking & Writing Point

Speaking:

1. What are the main causes of land pollution in your country?
2. What should individuals do to help reduce land pollution?
3. What would happen if your local area banned plastic bags?
4. If you were a mayor, what actions would you take to stop land pollution?

Writing:

Write a short paragraph (80–100 words) answering one of the following questions:
"Why is land pollution dangerous and how can we stop it?"

"What would happen if we ignored land pollution for the next 50 years?"
Try to use at least **two conditional sentences**.

Additional Reading for Individual Work

Text 1:

Urban Waste and Land Pollution

Modern cities generate massive amounts of waste every day, and the way we handle that waste has a major impact on the land. Urban waste includes food scraps, packaging, electronics, clothing, and construction materials. Most of this waste ends up in landfills, which are large open areas where garbage is buried.

In developed countries, landfills are managed to reduce environmental harm. They are lined to prevent toxins from leaking and monitored for gas emissions. However, even these landfills produce methane, a greenhouse gas, and eventually take up too much space. In developing countries, landfills are often unregulated and overflow with plastic, chemicals, and food waste.

Another problem is illegal dumping. People and businesses sometimes throw waste in forests, riversides, or empty lots. This not only damages nature but also spreads

disease. When waste decomposes, it attracts pests like rats and mosquitoes and releases unpleasant smells.

Electronic waste, or **e-waste**, is another growing problem. Old phones, computers, and appliances contain toxic materials like lead and mercury. If these are not disposed of properly, the toxins can leak into the ground and poison plants and animals.

Reducing urban land pollution requires better waste collection systems, recycling programs, and education. People must learn how to separate waste and reduce what they throw away. Cities should invest in cleaner technologies and enforce anti-dumping laws.

Vocabulary Exercises:

1) Match the words:

1. landfill	a. old electronics
2. e-waste	b. area where trash is buried
3. illegal dumping	c. harmful metal
4. mercury	d. throwing trash in forbidden areas

2) Fill in the blanks:

1. ___ like mercury and lead can poison the soil.
2. We must prevent ___ in nature reserves.
3. Proper ___ is needed to manage trash in large cities.

Text 2:

Agriculture and Soil Degradation

Agriculture plays a vital role in feeding the world's population, but it can also be a major cause of land pollution. Modern farming often involves large amounts of **chemical fertilizers**, **pesticides**, and **herbicides**. These substances are used to increase crop production, but they can have harmful effects on the soil and surrounding ecosystems.

When fertilizers are overused, they alter the natural nutrient balance of the soil. This makes the soil less fertile over time. Pesticides can kill beneficial insects and bacteria

that help maintain healthy soil. Herbicides may prevent other plants from growing, reducing biodiversity.

Livestock farming also contributes to land pollution. Animal waste contains high levels of nitrogen and other pollutants. If not managed properly, it can contaminate nearby land and water sources. The overgrazing of pastures leads to soil erosion and desertification in some regions.

Another problem is plastic pollution in agriculture. Many farmers use plastic sheets to cover crops or build temporary greenhouses. When these are not recycled properly, they break down into microplastics that remain in the soil.

Sustainable farming practices offer a solution. Organic farming, crop rotation, composting, and reduced use of chemicals can improve soil health. Governments and agricultural agencies must support farmers in adopting these methods through training and financial aid.

Vocabulary Exercises:

1) True or False?

1. Fertilizers can make the soil more fertile forever. ___
2. Overgrazing can cause soil erosion. ___
3. Microplastics disappear quickly from the soil. ___

2) Complete the sentences:

1. Using too many ___ harms the natural soil balance.
2. Overgrazing leads to ___ of the land.
3. ___ farming avoids chemicals and supports soil health.

Unit 6

Light and Noise Pollution

Light and noise pollution are often overlooked types of environmental degradation, yet they have serious effects on both the natural world and human health. Unlike

more visible forms of pollution, such as plastic waste or oil spills, light and noise pollution are invisible intrusions, often caused by modern lifestyles.

Light pollution refers to the excessive or misdirected artificial light that brightens the night sky and disrupts natural darkness. Common sources include streetlights, buildings, billboards, and vehicles. This artificial illumination can affect animals, particularly nocturnal species like bats, owls, and insects, whose natural behaviors are guided by light and darkness. For example, sea turtles may become disoriented and fail to reach the ocean after hatching. For humans, light pollution can interfere with sleep cycles, leading to insomnia and stress-related health issues.

Noise pollution involves unwanted or harmful sounds that disrupt normal activities. Common sources include traffic, construction, industrial sites, airplanes, and loud music. Constant exposure to high noise levels can lead to hearing loss, high blood pressure, and disturbed sleep. It also affects wildlife by interfering with animal communication, migration, and mating behaviors.

Both forms of pollution are especially problematic in urban areas, where population density and infrastructure are high. Moreover, light and noise pollution are linked to energy overconsumption and unsustainable urban planning.

Efforts to reduce light pollution include installing shielded lighting that directs light downward, using motion sensors to reduce unnecessary lighting, and switching to energy-efficient bulbs. In some cities, “dark sky” initiatives aim to preserve natural nighttime conditions. Similarly, managing noise pollution requires regulations on construction hours, proper maintenance of vehicles and machinery, and urban planning that includes green buffers like trees and noise barriers.

If communities had designed cities more sustainably from the start, we might have avoided many of these problems. Had people understood the long-term consequences, they could have made better choices regarding lighting and noise control.

Tackling these issues requires public awareness and changes in behavior. Citizens can take simple steps like turning off unused lights, reducing nighttime activities, and supporting policies for quieter, darker cities. While it may not seem as urgent as air or

water pollution, addressing light and noise pollution is essential for a healthier environment and a better quality of life.

Vocabulary Point

Word/Phrase - Meaning

Degradation - the process of something becoming worse

Misdirected - aimed in the wrong direction

Disoriented - confused about where to go

Nocturnal - active during the night

Overconsumption - using more resources than necessary

Shielded lighting - lighting that prevents light from spilling upward or outward

Buffers - physical barriers that reduce impact (e.g., trees reducing noise)

Initiatives - planned efforts to solve a problem

Exercises

1) Match the words to the definitions:

4. Confused about direction
5. Projects light downward only
6. Environmental worsening
7. Unnecessary use of resources
8. Aimed incorrectly
9. Physical protection from impact
10. Animals that are active at night
11. Planned efforts or programs

Words: A. degradation, B. disoriented, C. shielded lighting, D. buffers, E. misdirected, F. overconsumption, G. initiatives, H. nocturnal

3) **Complete the sentences using the correct words:**

1. Urban planning should include natural _____ like trees to reduce noise.
2. Bright billboards often lead to _____ of city lighting.
3. Many animals become _____ due to sudden artificial light at night.

4. We need more _____ to promote dark sky protection.
5. Using too many lights leads to _____ of electricity.
6. Owls are _____ creatures affected by excessive light.
7. If lighting is _____, it may illuminate areas unnecessarily.
8. Light and noise _____ continue to grow in cities.

Grammar Point:

Third Conditionals

Structure:
If + past perfect, **would have + past participle**

Use: To talk about imaginary situations in the past and their possible results.

Examples:

- If we had used shielded lighting earlier, we would have reduced light pollution.
- The animals wouldn't have suffered if noise levels had been controlled.

Exercises

1) Complete the sentences using the correct third conditional forms:

1. If cities (plan) better, noise pollution (become) such a big issue.
2. Animals (disturb) if people (install) quieter engines.
3. If local governments (take) action sooner, light pollution (decrease).
4. If the residents (be) more informed, they (turn off) unnecessary lights.
5. We (lose) biodiversity if noise (reduce).
6. If the city (limit) building height, the skyline (reflect) so much light.
7. If developers (consult) environmental experts, the urban layout (be) more eco-friendly.
8. The community (enjoy) better sleep if they (reduce) street noise.
9. If more citizens (participate) in dark sky events, awareness (spread) faster.
10. If factories (follow) noise regulations, surrounding areas (be) quieter.

2) Rewrite these sentences using third conditionals:

1. We didn't use efficient lighting. Our energy bills increased.
2. The city didn't build any green buffers. Noise became unbearable.
3. People didn't reduce their night activities. The animals suffered.
4. They didn't shield the lights. The sky remained bright.
5. Local councils ignored early warnings. Problems escalated.

Writing and Speaking Point

Speaking Prompts:

1. Describe how light or noise pollution affects your daily life.
2. Imagine your city had reduced noise earlier. How would it have changed your life?
3. Suggest some practical solutions to reduce these types of pollution.

Writing Prompts:

1. Write a paragraph about how your area is affected by light or noise pollution.
2. Imagine you are a city planner. What would you have done differently to prevent these issues? Use third conditional sentences.

Additional Reading for Individual Work

Text 1:

Light Pollution in Urban Spaces

In many big cities, light pollution has become a growing issue. Buildings are covered with advertisements that glow throughout the night, and streets are lit up long after they are empty. This excessive lighting not only wastes energy but also disrupts ecosystems. Birds that migrate at night can become confused by city lights, causing them to lose their path. Even humans are not unaffected — studies have shown that people living in brightly lit areas may suffer from sleep disorders.
Governments have started to take small steps. Some cities have switched to LED bulbs and reduced the number of streetlights in certain areas. However, more needs to be done. If cities had made these changes years ago, perhaps people and animals would not be suffering now. Greater public awareness and stronger regulations could help reduce light pollution and protect the health of both people and wildlife.

Vocabulary Activity: Choose the correct word from the text:

1. Birds become _____ by city lights. (confused / rested)
2. Light pollution can cause _____ disorders. (sleep / eating)
3. _____ lighting wastes energy. (Excessive / Soft)
4. Cities are starting to use _____ bulbs. (LED / candle)
5. Some birds lose their _____ when flying at night. (path / feathers)

Text 2:

The Effects of Noise on Wildlife

Noise pollution doesn't only affect humans; many animals suffer as well. Birds may stop singing or fly away from noisy places. Marine animals, like dolphins and whales, rely on sound to communicate and navigate. When there's constant noise from ships or oil drilling, their natural behaviors are disturbed. On land, animals that live near highways often experience stress and avoid mating.

Had people realized how damaging noise pollution was, they might have developed quieter technologies. Efforts to reduce noise include using silent engines, building sound barriers, and planting trees. These steps can help restore balance in the environment and make cities more livable for both animals and people.

Vocabulary Activity: Choose the correct word or phrase:

1. Marine animals use sound to _____. (communicate / swim)
2. Noise from ships _____ their behavior. (disturbs / improves)
3. Birds may _____ noisy areas. (avoid / love)
4. Silent engines help reduce _____. (noise / water)
5. Planting trees can act as a _____. (buffer / problem)

Text 3:

How Technology Could Have Helped

If urban developers had prioritized eco-friendly technology, the situation with light and noise pollution would have been much better today. Smart lighting systems that adjust based on motion and natural light levels were available years ago, but adoption was slow. Similarly, electric and quieter transport could have been more widespread earlier if there had been stronger incentives and public demand.

Many of the current problems exist because decision-makers ignored warnings. Had they listened to environmental experts, cities would have been designed with more green zones, better sound insulation, and smarter infrastructure. It's not too late to implement these solutions, but much damage could have been avoided with earlier action.

Vocabulary Activity: Match the meanings:

1. **Prioritized** – a. damaged beyond repair
2. **Adoption** – b. choosing to use something new
3. **Incentives** – c. rewards or motivations
4. **Warnings** – d. signs of possible danger
5. **Infrastructure** – e. basic physical systems of a city

REFERENCES:

1. Oxford University Press. English File. Intermediate / Upper-Intermediate. Oxford
2. McCarthy M., O'Dell F. Vocabulary in Use. Intermediate/Upper-Intermediate. Cambridge: Cambridge University Press.
3. BBC Learning English. Environment. [Електронний ресурс]. – Режим доступу: https://www.bbc.co.uk/learningenglish/topics/environment
4. British Council. LearnEnglish. [Електронний ресурс]. – Режим доступу: https://learnenglish.britishcouncil.org
5. TED-Ed. Environmental topics. [Електронний ресурс]. – Режим доступу: https://ed.ted.com/lessons?category=environment

А 64 ENGLISH FOR ECOLOGISTS [Текст] : Методичні вказівки до практичних занять та самостійної роботи для здобувачів першого (бакалаврського) рівня вищої освіти освітньої програми «Екологія» галузі знань Е Природничі науки, математика та статистика, спеціальності Е2 Екологія денної та заочної форм навчання/ уклад. Л. О. Доложевська. Луцьк : ЛНТУ, 2025. 52 с

Комп'ютерний набір Л.О.Доложевська
Редактор Л.О.Доложевська

Підп. до друку 2025р.
Формат 60х84/16. Папір офс. Гарнітура Таймс.
Ум. друк. арк. ___. Обл.-вид. арк.
Тираж ____ прим.

Відділ іміджу та промоції
Луцького національного технічного університету
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