07. Plants And Animals Depend On Each Other

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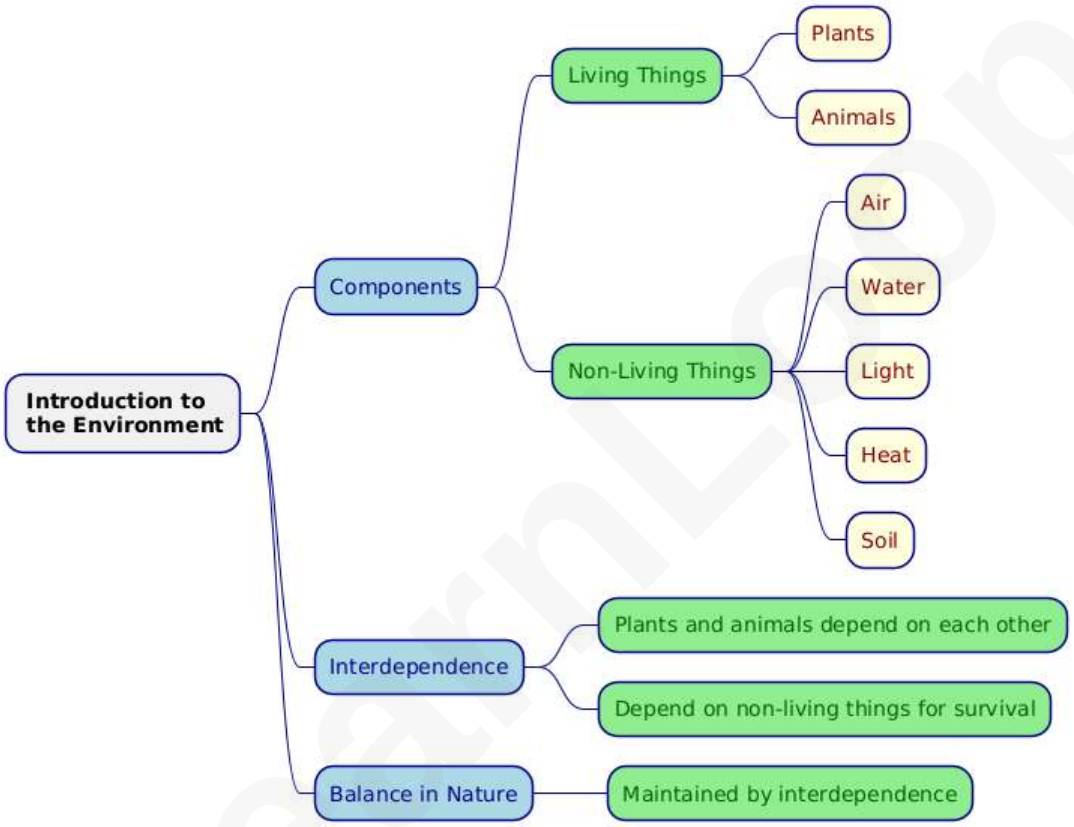
Self Study

Introduction to the Environment

- The environment is made up of living things and non-living things.
- Living things include plants and animals.
- Non-living things include air, water, light, heat, and soil.
- Plants and animals depend on each other and on non-living things for their survival.
- This interdependence of living and non-living components helps maintain the balance in nature.



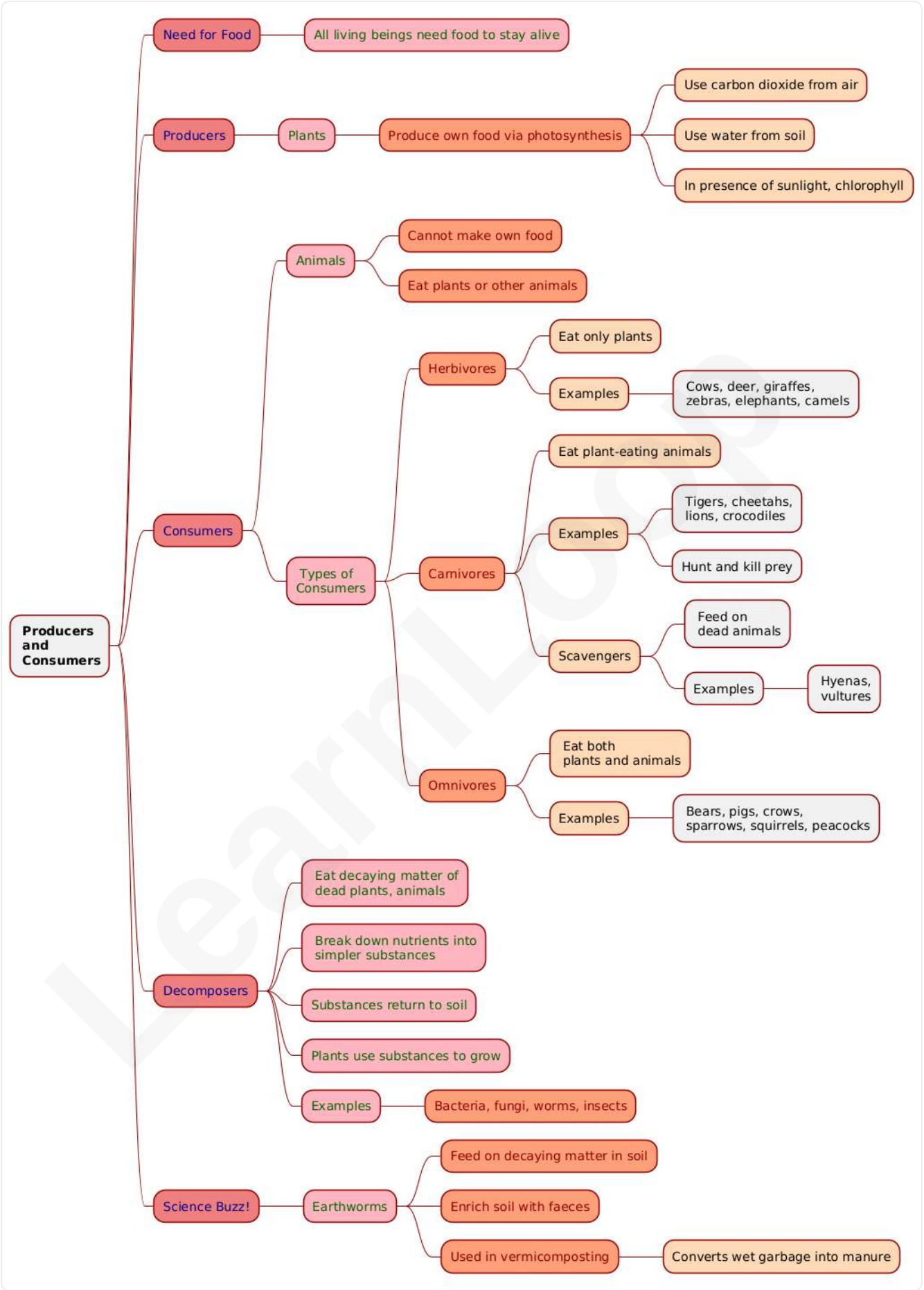
Producers and Consumers

- All living beings need food to stay alive.
- Plants produce their own food through the process of photosynthesis.
- In photosynthesis, plants use carbon dioxide from the air and water from the soil to make food. This process occurs in the presence of sunlight and chlorophyll.
- Since **plants** can make their own food, they are **called producers**.
- Animals cannot make their own food, so they eat plants or other animals that eat plants. **Animals are called consumers**.
- There are three types of consumers:
  a. **Herbivores: Eat only plants.**
     - Examples include cows, deer, giraffes, zebras, elephants, and camels.

b. **Carnivores: Eat other plant-eating animals.**
    - Examples include tigers, cheetahs, lions, and crocodiles, which hunt and kill their prey.
    - Some carnivores, such as hyenas and vultures, feed on the flesh of dead animals and are called scavengers.
c. **Omnivores: Get their food from both plants and animals.**
    - Examples include bears, pigs, crows, sparrows, squirrels, and peacocks.

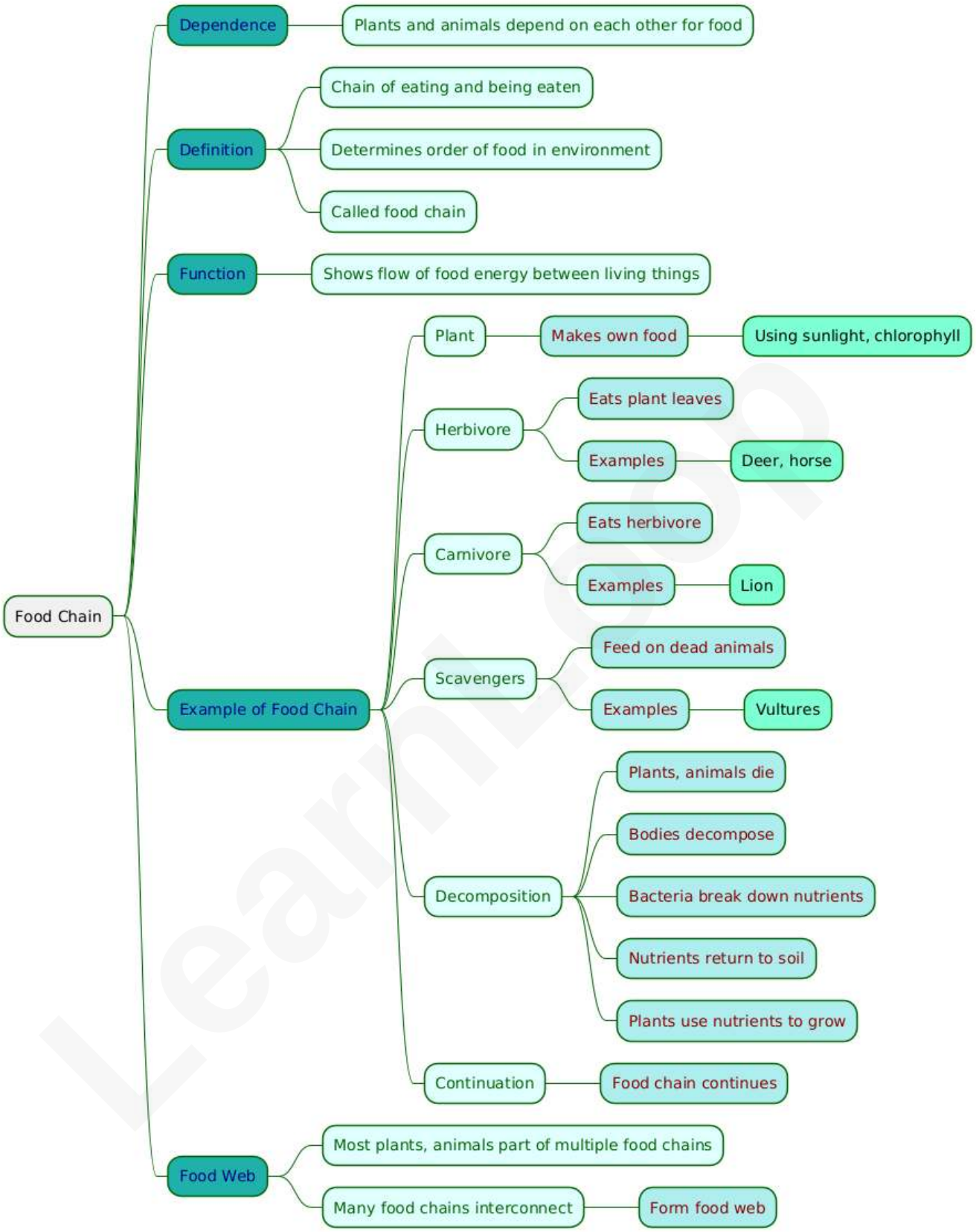
- **Decomposers eat decaying matter** of dead plants and animals.
    - They break down nutrients in the bodies of dead organisms into simpler substances.
    - These substances return to the soil, where plants use them to grow.
    - Examples of decomposers include bacteria, fungi, worms, and insects.

> **Science Buzz!**
> **Earthworms** feed on decaying matter in the soil and then enrich the soil with their faeces. They are widely used in vermicomposting, a method of converting wet garbage into manure.


Producers and Consumers
Need for Food
All living beings need food to stay alive
Producers
Plants
Produce own food via photosynthesis
Use carbon dioxide from air
Use water from soil
In presence of sunlight, chlorophyll
Consumers
Animals
Cannot make own food
Eat plants or other animals
Types of Consumers
Herbivores
Eat only plants
Examples
Cows, deer, giraffes, zebras, elephants, camels
Carnivores
Eat plant-eating animals
Examples
Tigers, cheetahs, lions, crocodiles
Hunt and kill prey
Scavengers
Feed on dead animals
Examples
Hyenas, vultures
Omnivores
Eat both plants and animals
Examples
Bears, pigs, crows, sparrows, squirrels, peacocks
Decomposers
Eat decaying matter of dead plants, animals
Break down nutrients into simpler substances
Substances return to soil
Plants use substances to grow
Examples
Bacteria, fungi, worms, insects
Science Buzz!
Earthworms
Feed on decaying matter in soil
Enrich soil with faeces
Used in vermicomposting
Converts wet garbage into manure

Food Chain

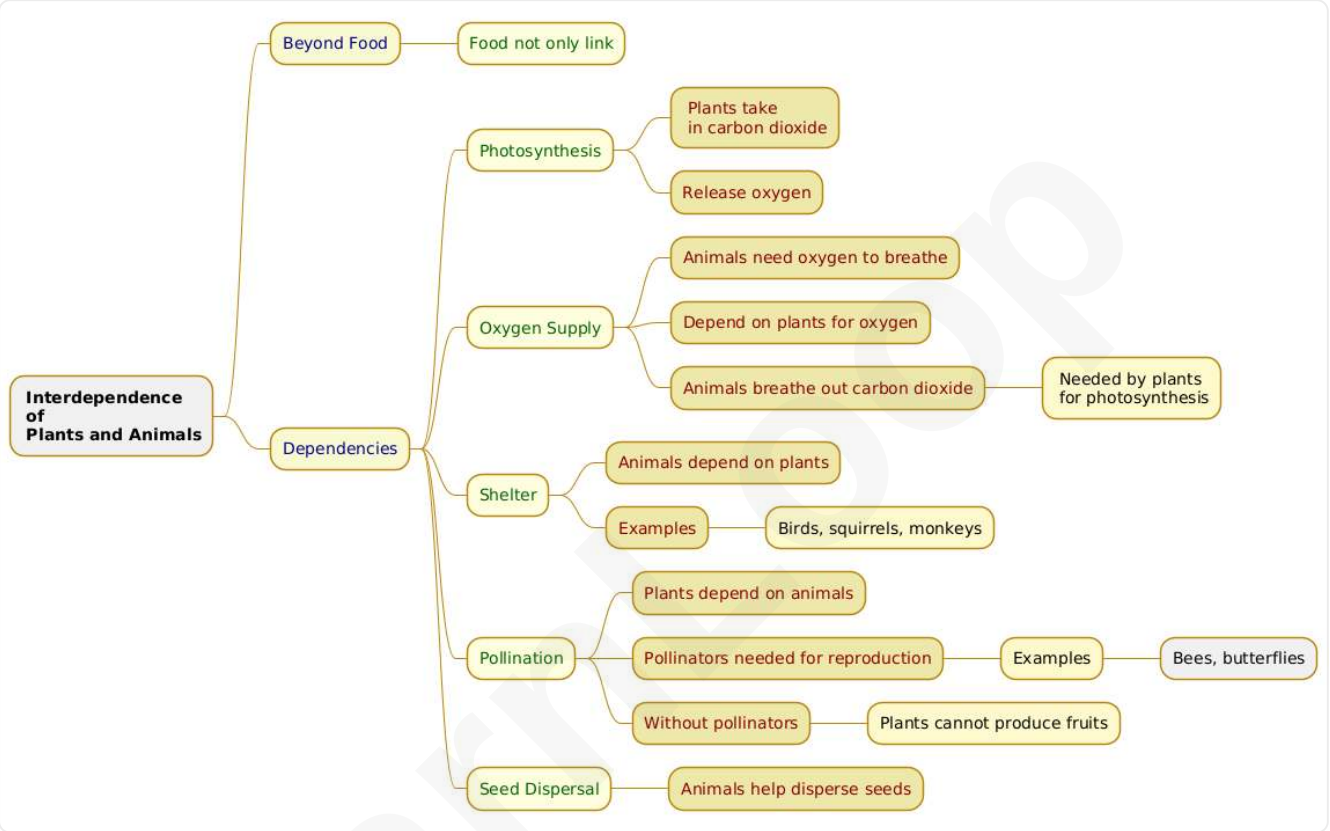
- Plants and animals depend on each other for food.
- They are linked together in a chain that determines the order in which organisms get food in their environment. This **chain of eating and being eaten is called the food chain.**
- The food chain **shows the flow of food energy** between different living things.
- Example of a food chain:
    - A **plant** makes its own food in the **presence of sunlight and chlorophyll**.
    - A **herbivore**, such as a deer or horse, **eats the leaves of the plant**.
    - The herbivore is eaten by a **carnivore,** such as a lion.
    - When the animals die, **scavengers**, such as vultures, feed on their flesh.
    - When plants and animals die, their **bodies decompose**.
    - **Bacteria break down** the nutrients in their bodies, which **return to the soil**.
    - The **nutrients** are used by **plants to grow**, and thus the food chain continues.
- Most plants and animals are part of more than one food chain.
- Many food chains interconnect to make a **food web**.



Interdependence of Plants and Animals

- Food is not the only thing that links plants and animals.
- Plants and animals depend on each other in several ways:

- During photosynthesis, **plants take in carbon dioxide from the air and release oxygen**. **Animals need oxygen to breathe** and depend on plants for a constant supply of oxygen in the environment. Animals breathe out carbon dioxide, which is needed by plants for photosynthesis.
- **Animals depend on plants for shelter.** Example: birds, squirrels, and monkeys lives on trees.
- **Plants depend on animals for pollination**. Without pollinators, such as bees and butterflies, plants would not be able to produce fruits.
- Animals help in the **dispersal of seeds**.



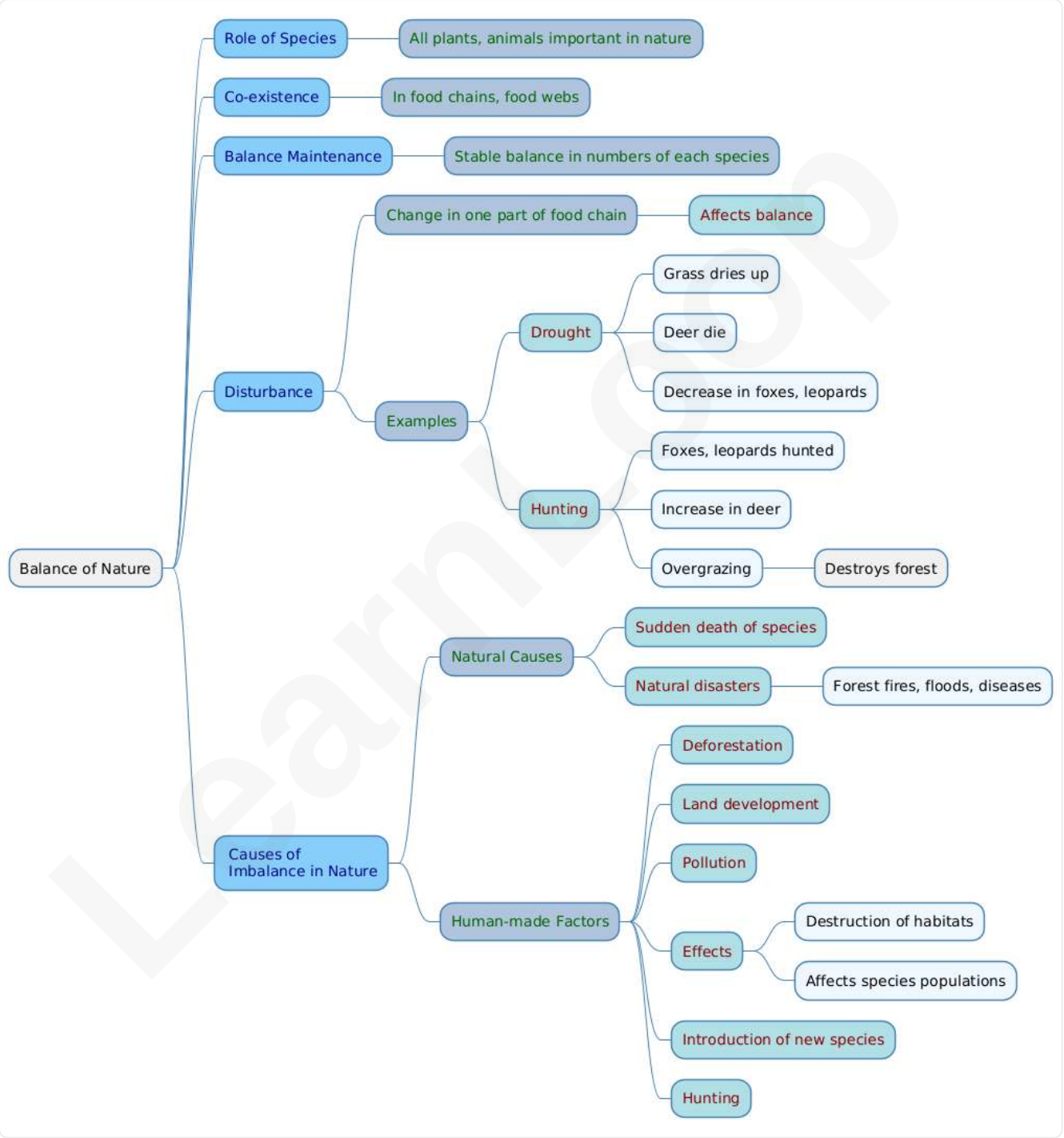
Balance of Nature

- All species of plants and animals play an important role in nature.
- **Plants and animals co-exist in food chains and food webs.**
- The **balance of nature is maintained** when there is **a stable balance in the numbers of each species in an environment.**
- If there is a change in even one part of the food chain, the balance of nature gets disturbed.
  - Example: If all grass dries up during a drought, deer will have no food and will die. This will lead to a decrease in the number of foxes and leopards, which eat deer.
  - Example: If foxes and leopards are hunted in large numbers, there will be an increase in the number of deer. This can lead to overgrazing of grass and plants, causing the destruction of the forest.

Causes of Imbalance in Nature

- The **food chain can be affected** by natural or human-made factors.
- Natural causes of imbalance in nature:
  - **Sudden death** of a species.

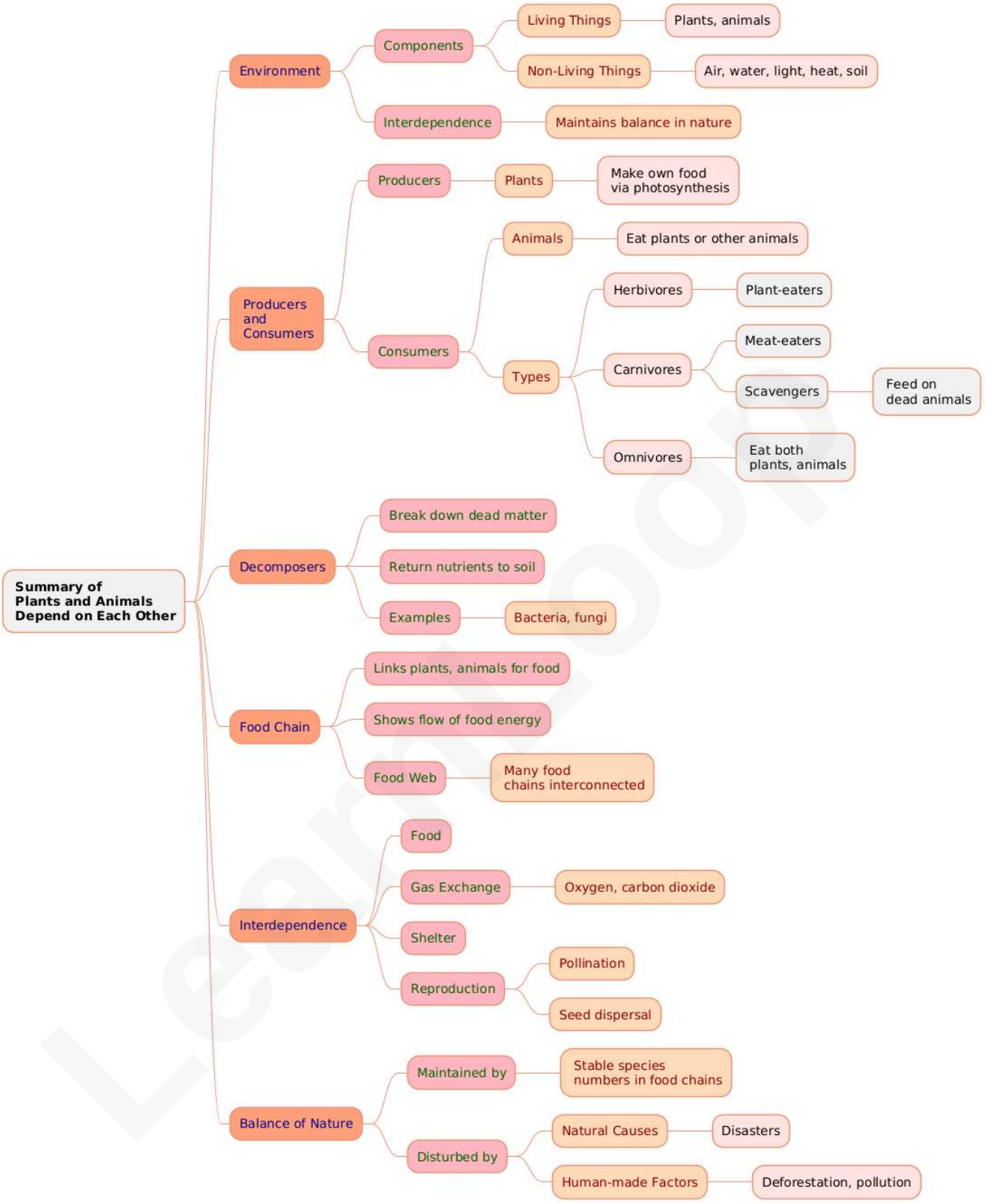
    - **Natural disasters**, such as forest fires, floods, or diseases.
- Human-made factors causing imbalance in nature:
    - **Deforestation**, **Land development and Pollution** lead to the **destruction of habitats**, affecting the population of various species.
    - Introduction of new species.
    - Hunting.



Summary of Plants and Animals Depend on Each Other

- The environment consists of **living things (plants and animals) and non-living things (air, water, light, heat, soil),** with interdependence maintaining the balance in nature.

- **Plants are producers**, making their own food via photosynthesis, while **animals are consumers**, eating plants or other animals.
- Consumers include **herbivores** (plant-eaters), **carnivores** (meat-eaters, including scavengers), and **omnivores** (eat both plants and animals).
- **Decomposers**, such as bacteria and fungi, break down dead matter, returning nutrients to the soil for plant growth.
- Plants and animals are linked in **food chains, showing the flow of food energy**, with many food chains forming a food web.
- Plants and animals depend on each other for food, **oxygen-carbon dioxide exchange, shelter, pollination, and seed dispersal**.
- The **balance of nature is** maintained by stable species numbers in food chains, but can be **disturbed by natural causes** (e.g., disasters) or **human-made factors** (e.g., deforestation, pollution).


Summary of Plants and Animals Depend on Each Other
Environment
Components
Living Things
Plants, animals
Non-Living Things
Air, water, light, heat, soil
Interdependence
Maintains balance in nature
Producers and Consumers
Producers
Plants
Make own food via photosynthesis
Consumers
Animals
Eat plants or other animals
Types
Herbivores
Plant-eaters
Carnivores
Meat-eaters
Scavengers
Feed on dead animals
Omnivores
Eat both plants, animals
Decomposers
Break down dead matter
Return nutrients to soil
Examples
Bacteria, fungi
Food Chain
Links plants, animals for food
Shows flow of food energy
Food Web
Many food chains interconnected
Interdependence
Food
Gas Exchange
Oxygen, carbon dioxide
Shelter
Reproduction
Pollination
Seed dispersal
Balance of Nature
Maintained by
Stable species numbers in food chains
Disturbed by
Natural Causes
Disasters
Human-made Factors
Deforestation, pollution

Key Terms

- **Producer** – An organism that makes its own food, such as plants through photosynthesis.
- **Consumer** – An organism that eats plants or other animals for food.
- **Decomposer** – An organism that eats decaying matter of plants and animals, breaking it down into simpler substances.
- **Food Chain** – A chain of plants and animals dependent on each other for food, showing the flow of food energy.
- **Interdependence** – The dependence of two or more things on each other, such as plants and animals in an environment.
- **Photosynthesis** – The process by which plants use carbon dioxide, water, sunlight, and chlorophyll to make their own food.
- **Herbivore** – A consumer that eats only plants, such as cows, deer, and elephants.
- **Carnivore** – A consumer that eats other animals, such as tigers, lions, and crocodiles.
- **Scavenger** – A carnivore that feeds on the flesh of dead animals, such as hyenas and vultures.
- **Omnivore** – A consumer that eats both plants and animals, such as bears, pigs, and crows.
- **Food Web** – A network of interconnected food chains in an environment.
- **Pollination** – The process by which animals, such as bees and butterflies, help plants produce fruits by transferring pollen.
- **Seed Dispersal** – The process by which animals help spread plant seeds to new locations.
- **Balance of Nature** – The stable balance in the numbers of each species in an environment, maintained by food chains and food webs.
- **Vermicomposting /Vermiculture** – A method of converting wet garbage into manure using earthworms, which enrich the soil.
- **Overgrazing** – Excessive eating of grass and plants by herbivores, leading to environmental destruction.

Flashcards

- Producer # An organism that makes its own food, such as plants through photosynthesis.
- Consumer # An organism that eats plants or other animals for food.
- Decomposer # An organism that eats decaying matter of plants and animals, breaking it down into simpler substances.
- Food Chain # A chain of plants and animals dependent on each other for food, showing the flow of food energy.
- Interdependence # The dependence of two or more things on each other, such as plants and animals in an environment.
- Photosynthesis # The process by which plants use carbon dioxide, water, sunlight, and chlorophyll to make their own food.
- Herbivore # A consumer that eats only plants, such as cows, deer, and elephants.
- Carnivore # A consumer that eats other animals, such as tigers, lions, and crocodiles.

- Scavenger # A carnivore that feeds on the flesh of dead animals, such as hyenas and vultures.
- Omnivore # A consumer that eats both plants and animals, such as bears, pigs, and crows.
- Food Web # A network of interconnected food chains in an environment.
- Oxygen # A gas released by plants during photosynthesis, needed by animals for breathing.
- Carbon Dioxide # A gas breathed out by animals, used by plants for photosynthesis.
- Pollination # The process by which animals, such as bees and butterflies, help plants produce fruits by transferring pollen.
- Seed Dispersal # The process by which animals help spread plant seeds to new locations.
- Balance of Nature # The stable balance in the numbers of each species in an environment, maintained by food chains and food webs.
- Vermicomposting # A method of converting wet garbage into manure using earthworms, which enrich the soil.
- Natural Causes # Factors like sudden death of species or natural disasters (e.g., forest fires, floods, diseases) that disturb the balance of nature.
- Human-made Factors # Activities like deforestation, land development, pollution, introduction of new species, and hunting that disturb the balance of nature.
- Overgrazing # Excessive eating of grass and plants by herbivores, leading to environmental destruction.

Answer to Textbook exercises

SECTION 1

I. Tick (✓) the correct option to complete each sentence.

1. _____ is a non-living component of an environment.
   a. Bird
   b. Grass
   c. Air
   d. Insect
2. An organism that can make its own food is called a _____.
   a. producer
   b. herbivore
   c. carnivore
   d. omnivore
3. A _____ feeds on dead animals.
   a. herbivore
   b. scavenger
   c. decomposer
   d. producer
4. Plants produce _____ which is breathed in by living beings.
   a. hydrogen
   b. nitrogen
   c. carbon dioxide
   d. oxygen
5. _____ are used in vermiculture.
   a. Moths
   b. Earthworms
   c. Bees
   d. Butterflies

II. Write true (T) or false (F).

1. Carnivores eat both plants and flesh of other animals.
   - F
2. Herbivores make their own food.
   - F
3. Decomposers are part of a food chain.
   - T
4. The introduction of a new species in an environment upsets the balance of nature.
   - T
5. Increase in the population of herbivores results in overgrazing.
   - T

III. Name the following:

1. The process that helps plants to make food.
    - Photosynthesis
2. A scavenger bird.
    - Vulture
3. A living being that helps to pollinate flowers.
    - Bee
4. A natural cause of disturbing the balance of nature.
    - Forest fire
5. The interaction of many food chains.
    - Food web

SECTION 2

I. Short answer questions

1. Define the term 'consumers.'
    - Consumers are organisms that cannot make their own food and eat plants or other animals for food.
2. What is vermiculture?
    - Vermiculture is a method of converting wet garbage into manure using earthworms, which enrich the soil. this is also called vermicomposting.
3. Name the gas needed by plants for photosynthesis.
    - Carbon dioxide
4. What is the role of the sun in a food chain?
    - The sun provides energy for plants to make food through photosynthesis, which is the starting point of the food chain.

II. Long answer questions

1. What are decomposers? Explain with an example.
    - Decomposers are organisms that eat decaying matter of dead plants and animals, breaking it down into simpler substances that return to the soil for plants to use; an example is bacteria, which break down nutrients in dead organisms, helping plants grow.
2. What is a food chain? Explain with an example.
    - A food chain is a chain of plants and animals dependent on each other for food, showing the flow of food energy; for example, a plant makes its own food, a deer eats the plant, a lion eats the deer, vultures feed on the dead lion, and bacteria decompose the remains, returning nutrients to the soil for plants.
3. Describe the ways in which plants and animals depend on each other.
    - Plants and animals depend on each other for **food**, with plants producing food and animals consuming plants or other animals; plants release oxygen during **photosynthesis**, which animals need to breathe, while animals **breathe** out carbon dioxide, which plants use for photosynthesis; animals like birds

depend on plants for **shelter**, and plants depend on animals like bees for **pollination** and **seed dispersal**.

4. What are the human-made factors that upset the balance of nature?
    - Human-made factors that upset the balance of nature include **deforestation**, which destroys habitats; land development, which reduces living spaces for species; **pollution**, which harms plants and animals; the **introduction of new species**, which can disrupt food chains; and hunting, which reduces animal populations, affecting the balance of species.

Challenge Questions

1. If the population of herbivores increases, it leads to overgrazing. What are the dangers of overgrazing?
    - The dangers of overgrazing include the destruction of grass and plants, leading to soil erosion; loss of habitat for other animals; reduced food for herbivores, causing starvation; and disruption of the food chain, affecting carnivores and decomposers.
2. How does the destruction of animal habitats disturb the balance of nature?
    - The destruction of animal habitats disturbs the balance of nature by reducing living spaces, leading to a decline in animal populations; this affects food chains, as fewer animals mean less food for predators and scavengers; it also disrupts pollination and seed dispersal, harming plant growth; and it can lead to overpopulation of some species, causing overgrazing or other imbalances.

Fill in the blanks

1. The environment is made up of living things and ..... things.
    - Non-living
2. Plants produce their own food through the process of ..... .
    - Photosynthesis
3. In photosynthesis, plants use ..... from the air to make food.
    - Carbon dioxide
4. Photosynthesis occurs in the presence of ..... and chlorophyll.
    - Sunlight
5. Animals that eat only plants are called ..... .
    - Herbivores
6. Animals that feed on the flesh of dead animals are called ..... .
    - Scavengers
7. ..... eat both plants and animals.
    - Omnivores
8. Organisms that break down decaying matter into simpler substances are called ..... .
    - Decomposers
9. The chain of eating and being eaten in an environment is called a ..... .
    - Food chain
10. Many food chains interconnect to form a ..... .
    - Food web
11. During photosynthesis, plants release ..... into the air.
    - Oxygen
12. Animals breathe out ..... , which is used by plants for photosynthesis.
    - Carbon dioxide
13. Plants depend on animals like bees for ..... .
    - Pollination
14. Animals help plants by aiding in the ..... of seeds.
    - Dispersal
15. The stable balance in the numbers of each species in an environment is called the ..... of nature.
    - Balance
16. ..... are widely used in vermicomposting to convert wet garbage into manure.
    - Earthworms
17. A natural disaster like a ..... can disturb the balance of nature.
    - forest fires, floods or diseases
18. ..... is a human-made factor that destroys habitats and upsets the balance of nature.

- Deforestation, land development and pollution lead to the destruction of habitats

19. An organism that makes its own food, such as a plant, is called a ..... .
    - Producer
20. Animals that eat other animals, such as tigers, are called ..... .
    - Carnivores
21. A ..... is an example of a herbivore that eats only plants.
    - Deer, Cow, Goat, etc
22. A ..... is an example of a carnivore that hunts other animals.
    - Lion, Tiger, Leopard, etc
23. A ..... is an example of a scavenger that feeds on dead animals.
    - Vulture, Hyena
24. A ..... is an example of an omnivore that eats both plants and animals.
    - Bear, Pig, Squirrel
25. A ..... is an example of a decomposer that breaks down decaying matter.
    - Bacteria, Fungi, Worms, Insects
26. In a food chain, a ..... eats the leaves of a plant, which is then eaten by a carnivore.
    - Herbivore
27. Animals like ..... depend on plants for shelter.
    - Birds, Squirrels, Monkeys
28. ..... are animals that help plants produce fruits through pollination.
    - Bees
29. The balance of nature is maintained when there is a stable balance in the ..... of each species.
    - Numbers
30. If all grass dries up during a ....., deer will have no food and may die.
    - Drought
31. If foxes are hunted in large numbers, it can lead to an ..... in dear and overgrazing.
    - increase
32. A sudden ..... of a species is a natural cause of imbalance in nature.
    - Death
33. ..... is a human-made factor that harms plants and animals, upsetting the balance of nature.
    - Pollution

Answer in one line

1. What are the two main types of living things in the environment?
    - The two main types of living things in the environment are **plants and animals**.
2. What are some examples of non-living things in the environment?
    - Examples of non-living things in the environment are **air, water, light, heat, and soil**.
3. How do plants make their own food?
    - Plants make their own food through **photosynthesis**, using **carbon dioxide, water, sunlight, and chlorophyll**.
4. Why are plants called producers?
    - Plants are called producers because they produce their own food through photosynthesis.
5. What is the difference between herbivores and carnivores?
    - Herbivores eat only plants, while carnivores eat other animals.
6. What is the role of scavengers in the environment?
    - Scavengers feed on the flesh of dead animals, helping to clean up the environment.
7. What are some examples of omnivores?
    - Examples of omnivores are bears, pigs, crows, sparrows, squirrels, and peacocks.
8. How do decomposers help plants grow?
    - Decomposers break down decaying matter into simpler substances, returning nutrients to the soil for plants to use.
9. What does a food chain show?
    - A food chain shows **the flow of food energy** between different living things in an environment.
10. What is the role of plants in a food chain?
    - Plants act as **producers** in a food chain, making food that is eaten by herbivores and other consumers.
11. How do animals depend on plants for oxygen?
    - Animals depend on plants for oxygen, which is released during photosynthesis and is needed for breathing.
12. What gas do animals provide to plants, and how is it used?
    - Animals provide carbon dioxide to plants, which is used in photosynthesis to make food.
13. How do animals like birds depend on plants?
    - Animals like birds depend on plants for **shelter**, using trees and bushes for nesting and protection.
14. What is vermicomposting, and what organisms are used in it?
    - Vermicomposting is **a method of converting wet garbage into manure**, using earthworms to enrich the soil.
15. What happens if one part of a food chain is disturbed, such as during a drought?
    - If one part of a food chain is disturbed, such as grass drying up during a drought, herbivores like deer may die, affecting carnivores like foxes and leopards.
16. What is overgrazing, and what can it lead to?

- Overgrazing is excessive eating of grass and plants by herbivores, which can lead to the destruction of forests and habitats.

17. What are some natural causes of imbalance in nature?
    - Natural causes of imbalance in nature include sudden death of species and natural disasters like **forest fires, floods, or diseases.**
18. How does pollution upset the balance of nature?
    - Pollution upsets the balance of nature by harming plants and animals, destroying habitats, and affecting the populations of various species.
19. What is the effect of introducing a new species into an environment?
    - Introducing a new species into an environment can upset the balance of nature by disrupting food chains and affecting existing species populations.
20. How does hunting affect the balance of nature?
    - Hunting affects the balance of nature by reducing animal populations, which can lead to overpopulation of prey species and overgrazing, disrupting food chains.
21. How does interdependence between plants and animals help maintain the balance in nature?
    - Interdependence between plants and animals helps maintain the balance in nature by ensuring **a stable flow of food, oxygen, and carbon dioxide, as well as supporting shelter, pollination, and seed dispersa**l, keeping species populations in check.
22. What are the components needed for photosynthesis besides carbon dioxide?
    - The components needed for photosynthesis besides carbon dioxide are **water, sunlight, and chlorophyll**.
23. What is the definition of consumers?
    - Consumers are organisms that cannot make their own food and eat plants or other animals for food.
24. What is a food web, and how is it different from a food chain?
    - A food web is a network of interconnected food chains, differing from a food chain, which is a single chain of eating and being eaten, by showing multiple feeding relationships in an environment.
25. What is the role of butterflies in plant reproduction?
    - Butterflies help in plant reproduction by acting as **pollinators**, transferring pollen to help plants produce fruits.
26. What is the role of animals in seed dispersal?
    - Animals help in seed dispersal by carrying seeds to new locations, aiding plant growth and spread.
27. What is the role of all species of plants and animals in nature?
    - All species of plants and animals play an important role in nature by co-existing in food chains and food webs, maintaining the balance of the environment.
28. How do plants and animals co-exist in nature?
    - Plants and animals co-exist in nature through food chains and food webs, where each species depends on others for food, gas exchange, shelter, and reproduction.
29. How does land development upset the balance of nature?
    - Land development upsets the balance of nature by reducing living spaces for other species, destroying habitats, and affecting the populations of plants and animals.

Long answers

1. How do plants and animals depend on each other for food in an environment?
    - **Points to remember:** Plants = producers, make food; animals = consumers, eat plants/animals; food chain = energy flow; decomposers = nutrient cycle.
    - **Answer:** Plants and animals **depend on each other for food** through a food chain, where **plants, as producers**, make their own food using photosynthesis, providing energy for animals. **Animals, as consumers,** eat plants directly if they are herbivores, or eat other animals if they are carnivores or omnivores, **transferring energy through the chain. Scavengers** feed on dead animals, cleaning up the environment, while **decomposers**, like bacteria, break down dead plants and animals, **returning nutrients to the soil**. These nutrients are then used by plants to grow, continuing the cycle of dependence for food in the environment.
2. What is the role of photosynthesis in the interdependence of plants and animals?
    - **Points to remember:** Photosynthesis = food, oxygen; plants = carbon dioxide, water, sunlight, chlorophyll; animals = oxygen, carbon dioxide exchange.
    - **Answer:** Photosynthesis plays a crucial role in the interdependence of plants and animals by allowing plants to **produce their own food**, which serves as **the base of the food chain for animals**. During photosynthesis, plants use carbon dioxide from the **air, water** from the soil, **sunlight, and chlorophyll to make food,** releasing oxygen as a byproduct. Animals depend on this **oxygen to breathe**, while they breathe out carbon dioxide, which plants use for photosynthesis. This **exchange of gases ensures a continuous cycle**, supporting the **survival** of both plants and animals in the environment.
3. What are the different types of consumers, and how do they contribute to the food chain?
    - **Points to remember:** Consumers = herbivores, carnivores, omnivores; herbivores = eat plants; carnivores = eat animals, scavengers; omnivores = both; energy flow.
    - **Answer:** The different types of consumers are herbivores, carnivores, and omnivores, each playing a vital role in the food chain. **Herbivores**, like deer and cows, **eat plants**, transferring energy from producers to the next level of the chain. **Carnivores**, like lions and tigers, **eat herbivores**, with some, called **scavengers**, like vultures, **feeding on dead animals**, helping to **clean the environment. Omnivores**, like bears and crows, eat both plants and animals, linking different parts of the food chain, ensuring the flow of energy through various organisms in the environment.
4. How do decomposers help maintain the balance of nature, and what is an example of their use?
    - **Points to remember:** Decomposers = break down dead matter; nutrients = soil; example = earthworms, vermicomposting; balance = nutrient cycle.
    - **Answer:** Decomposers help maintain the balance of nature by **breaking down the decaying matter of dead plants and animals into simpler substances**, returning essential **nutrients to the soil**. These nutrients are then **used by plants to grow**, ensuring the continuation of the food chain and supporting all living things. An example of their use is **earthworms in vermicomposting,** where they feed on decaying matter in the soil and enrich it with their faeces, converting **wet garbage into manure**. This process helps **recycle nutrients, keeping the environment healthy and balanced.**
5. What is a food chain, and how does it differ from a food web?
    - **Points to remember:** Food chain = single energy flow; example = plant → deer → lion; food web = multiple chains; interconnected = complex.

- **Answer: A food chain is a single chain** of eating and being eaten in an environment, showing the flow of food energy, such as a plant being eaten by a deer, which is then eaten by a lion, followed by scavengers and decomposers. It represents **a linear path of energy transfer from producers to consumers and decomposers**. A food web, however, is a network of many interconnected food chains, showing the complex feeding relationships among various organisms in an environment. Unlike a food chain, **a food web** illustrates how most plants and animals are part of multiple chains, **providing a more complete picture of energy flow**.

6. How do plants and animals depend on each other beyond food, and what are some examples?
   - **Points to remember:** Beyond food = gas exchange, shelter, pollination, seed dispersal; examples = oxygen, carbon dioxide, bees, birds.
   - **Answer:** Plants and animals depend on each other beyond food through **gas exchange, shelter, pollination, and seed dispersal**, ensuring their survival and reproduction. Plants release oxygen during photosynthesis, which animals need to breathe, while animals breathe out carbon dioxide, which plants use for photosynthesis, creating a vital gas exchange cycle. Animals, such as birds, squirrels, and monkeys, depend on plants for shelter, using trees for nesting and protection, while plants depend on animals like bees and butterflies for pollination to produce fruits and seeds for reproduction. Additionally, animals help in seed dispersal, carrying seeds to new locations, aiding plant growth, as seen with birds spreading seeds through their droppings.
7. What is the balance of nature, and how is it maintained?
   - **Points to remember:** Balance = stable species numbers; maintained = food chains, webs; role = all species; co-existence = interdependence.
   - **Answer:** The balance of nature is **the stable balance in the numbers of each species in an environment**, ensuring that no single species overpopulates or disappears, **keeping the ecosystem healthy**. It is maintained through food chains and food webs, where plants, animals, and decomposers co-exist, with each species playing a role in **the flow of energy and nutrients**. All species of plants and animals are important, as producers provide food, consumers transfer energy, and decomposers recycle nutrients, supporting interdependence. This co-existence prevents overgrazing, starvation, or habitat destruction, preserving the balance of nature.
8. How can a disturbance in one part of a food chain affect the balance of nature, and what are some examples?
   - **Points to remember:** Disturbance = affects balance; examples = drought → deer → foxes; hunting → deer → overgrazing; impact = species numbers.
   - **Answer:** A disturbance in one part of a food chain can affect the balance of nature by altering the numbers of species, disrupting the flow of energy and nutrients, and impacting the entire ecosystem.
     - For example, if **all grass dries up during a drought**, deer will have no food and may die, leading to a decrease in the number of foxes and leopards that depend on deer for food, causing a ripple effect through the chain.
     - Another example is if **foxes and leopards are hunted in large numbers**, the deer population may increase, leading to overgrazing of grass and plants, which can destroy forests and habitats. These disturbances show how interconnected species are, and how a change in one part can upset the balance of nature.
     - **Widespread pesticide use decimates insect populations**, reducing food for insectivorous animals like birds and amphibians, which then starves their predators and disrupts plant pollination. This ripple effect ultimately causes a decline in species like frog and snakes.

9. What are the natural causes of imbalance in nature, and how do they affect the environment?
    - **Points to remember:** Natural causes = sudden death, disasters; disasters = forest fires, floods, diseases; affect = species, habitats; example = drought.
    - **Answer:** Natural causes of imbalance in nature include the **sudden death of a species and natural disasters**, such as **forest fires, floods, and diseases**, which disrupt the environment. These events can affect the environment by reducing the population of certain species, destroying habitats, and altering food chains, leading to an imbalance in species numbers. For example, **a drought can dry up grass**, causing herbivores like deer to die from lack of food, which then affects carnivores like foxes that depend on them, disrupting the food chain. Such natural disturbances can have long-lasting effects on the ecosystem, making it difficult to maintain the balance of nature.
10. What are the human-made factors that upset the balance of nature, and how do they impact the environment?
    - **Points to remember:** Human-made = deforestation, land development, pollution, new species, hunting; impact = habitats, species; example = overgrazing.
    - **Answer:** Human-made factors that upset the balance of nature include **deforestation, land development**, **pollution, the introduction of new species, and hunting**, each causing significant environmental damage. Deforestation and land development **destroy habitats, reducing living spaces** for plants and animals, while **pollution harms species** and disrupts ecosystems, affecting their survival. The introduction of new species can disrupt food chains by competing with or preying on existing species, and hunting reduces animal populations, leading to imbalances, such as overgrazing by herbivores if predators are removed. These actions impact the environment by altering species numbers, destroying habitats, and disrupting the natural balance, making it challenging for ecosystems to recover.

Discover and Learn

Image Based Questions

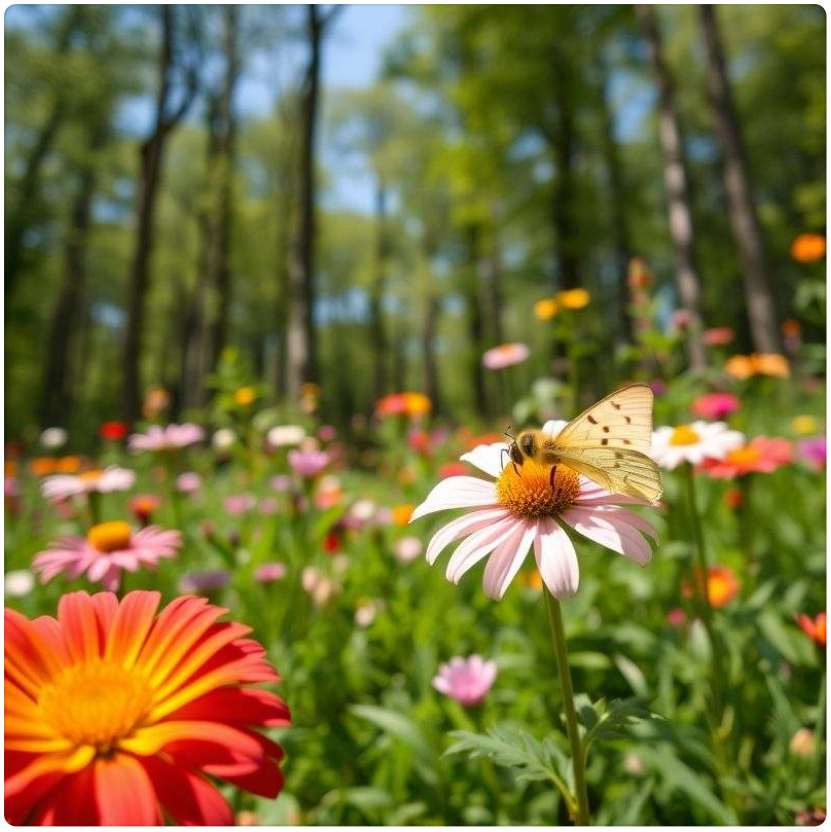
Question 1.

Questions:
a. Identify the producer in the image.
b. Name the herbivore shown in the image.
c. What role does the vulture play in the ecosystem depicted in the image?

Answers:

- a. The producer in the image is the grass, as it makes its own food through photosynthesis.
- b. The herbivore shown in the image is the deer, as it eats plants like grass.
- c. The vulture plays the role of a scavenger, feeding on the flesh of dead animals in the ecosystem.

Question 2



Questions:
a. What process are the plants in the image undergoing to produce food?
b. What role do the bee and butterfly play in the life cycle of the plants?
c. How do the plants benefit animals like bees and butterflies?

Answers:

- a. The plants in the image are undergoing photosynthesis to produce food, using sunlight, carbon dioxide, and water.
- b. The bee and butterfly play the role of pollinators, helping plants reproduce by transferring pollen from one flower to another.
- c. Plants benefit animals like bees and butterflies by providing nectar as a food source, which the animals collect for energy.

Question 3.

Questions:

a. What type of organisms are shown on a log?
b. What is the role of these organisms in the ecosystem?
c. How do plants benefit from the actions of these organisms?

Answers:

- a. The organisms shown breaking down the decaying log are decomposers, such as mushrooms (fungi), earthworms, and bacteria.
- b. These organisms play the role of decomposers, breaking down the nutrients in dead plants and animals into simpler substances like manure that return to the soil.
- c. Plants benefit from the actions of decomposers as the nutrients released into the soil are used by plants to grow.

Question 4

Questions:

a. Identify the producer, herbivore, carnivore, and scavenger in the food chain shown in the image.
b. What would happen to the food chain if the grass dried up due to a drought?
c. How does the food chain shown in the image help maintain the balance of nature?

Answers:

- a. In the food chain, the producer is grass, the herbivore is the rabbit, the carnivore is the fox, and the scavenger is the vulture.
- b. If the grass dried up due to a drought, the rabbit would have no food and could die, leading to a decrease in the fox population due to lack of prey, and the vulture might also be affected due to fewer dead animals to feed on.
- c. The food chain helps maintain the balance of nature by ensuring a stable balance in the numbers of each species, preventing overpopulation or extinction of any one species.

Question 5

Questions:
a. What human-made factor is shown in the image that affects the balance of nature?
b. How does this factor impact the animals shown in the image?
c. What could be a long-term effect on the food chain in this ecosystem?

Answers:

- a. The human-made factor shown in the image is **deforestation**, which destroys habitats and affects the balance of nature.
- b. Deforestation impacts the animals by **destroying their shelter, forcing them to flee, and reducing their food sources**, which can lead to a **decline in their population**.
- c. A long-term effect on the food chain could be the disruption of the balance, such as a **decrease in herbivores** due to lack of plants, leading to a **decline in carnivores and scavengers**, and an overall **imbalance in the ecosystem**.

Flashcards

www.studystack.com

https://www.studystack.com/iflashcardnew-4465989

Crossword Puzzles

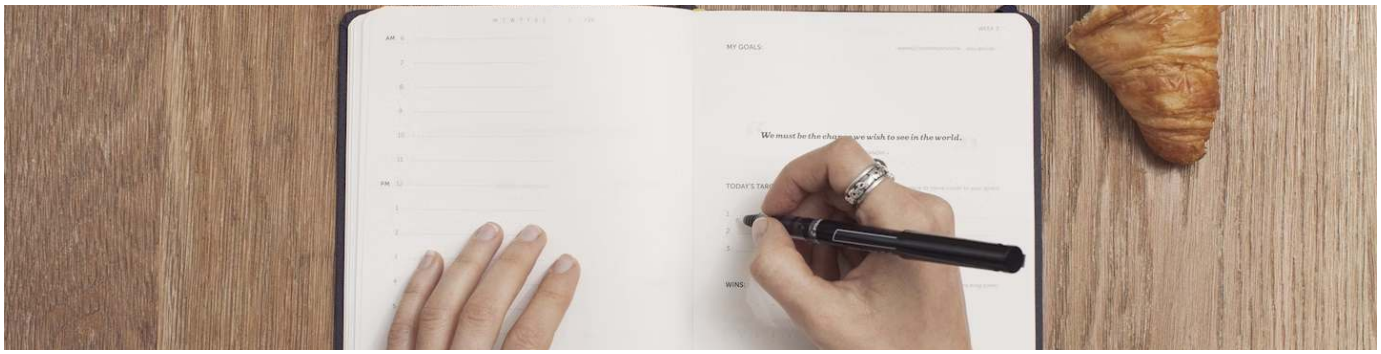
Paper puzzle (if answer is 2 words write without space)

- plants and animals Crossword!!!.pdf
  - plants and animals Crossword!!!-answers.pdf

Play Online

The Wonder Lab: Watch and Learn.

Plants And Animals Depend On Each Other - Our Amazing World!



Practice Sheets

Prepared by: learnloophq@gmail.com

Fill in the blanks

Prepared by: learnloophq@gmail.com

Chapter: 07. Plants And Animals Depend On Each Other

1. A ..... is an example of a carnivore that hunts other animals.
2. If all grass dries up during a ....., deer will have no food and may die.
3. The environment is made up of living things and ..... things.
4. Animals breathe out ....., which is used by plants for photosynthesis.
5. Photosynthesis occurs in the presence of ..... and chlorophyll.
6. A ..... is an example of an omnivore that eats both plants and animals.
7. The balance of nature is maintained when there is a stable balance in the ..... of each species.
8. A natural disaster like a ..... can disturb the balance of nature.
9. A ..... is an example of a herbivore that eats only plants.
10. The chain of eating and being eaten in an environment is called a ..... .
11. Organisms that break down decaying matter into simpler substances are called ..... .
12. In a food chain, a ..... eats the leaves of a plant, which is then eaten by a carnivore.
13. If foxes are hunted in large numbers, it can lead to an ..... in dear and overgrazing.
14. ..... eat both plants and animals.
15. A ..... is an example of a scavenger that feeds on dead animals.
16. The stable balance in the numbers of each species in an environment is called the ..... of nature.
17. ..... are animals that help plants produce fruits through pollination.
18. Many food chains interconnect to form a ..... .
19. Animals that eat only plants are called ..... .
20. In photosynthesis, plants use ..... from the air to make food.
21. Animals that feed on the flesh of dead animals are called ..... .
22. Animals like ..... depend on plants for shelter.
23. During photosynthesis, plants release ..... into the air.
24. A ..... is an example of a decomposer that breaks down decaying matter.
25. A sudden ..... of a species is a natural cause of imbalance in nature.
26. Animals help plants by aiding in the ..... of seeds.
27. ..... are widely used in vermicomposting to convert wet garbage into manure.
28. ..... is a human-made factor that harms plants and animals, upsetting the balance of nature.
29. ..... is a human-made factor that destroys habitats and upsets the balance of nature.
30. An organism that makes its own food, such as a plant, is called a ..... .

31. Animals that eat other animals, such as tigers, are called ..... .
32. Plants produce their own food through the process of ..... .
33. Plants depend on animals like bees for ..... .

Answer key - Fill in the blanks
Prepared by: learnloophq@gmail.com

Answer key - Fill in the blanks

Prepared by: learnloophq@gmail.com

Chapter: 07. Plants And Animals Depend On Each Other

1. Lion, Tiger, Leopard, etc
2. Drought
3. Non-living
4. Carbon dioxide
5. Sunlight
6. Bear, Pig, Squirrel
7. Numbers
8. forest fires, floods or diseases
9. Deer, Cow, Goat, etc
10. Food chain
11. Decomposers
12. Herbivore
13. increase
14. Omnivores
15. Vulture, Hyena
16. Balance
17. Bees
18. Food web
19. Herbivores
20. Carbon dioxide
21. Scavengers
22. Birds, Squirrels, Monkeys
23. Oxygen
24. Bacteria, Fungi, Worms, Insects
25. Death
26. Dispersal
27. Earthworms
28. Pollution
29. Deforestation, land development and pollution lead to the destruction of habitats
30. Producer
31. Carnivores
32. Photosynthesis

33. Pollination

Answer in one line

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Chapter: 07. Plants And Animals Depend On Each Other

1. What is the role of all species of plants and animals in nature?

_____

_____

2. What is the main difference between herbivores and carnivores?

_____

_____

3. What is overgrazing, and what can it lead to?

_____

_____

4. How do animals depend on plants for oxygen?

_____

_____

5. What are some examples of non-living things in the environment?

_____

_____

6. How do animals like birds depend on plants?

_____

_____

7. What is the role of butterflies in plant reproduction?

_____

_____

8. What is the definition of consumers?

_____

_____

9. What are some natural causes of imbalance in nature?

_____

10. What are the two main types of living things in the environment?

11. What is the role of animals in seed dispersal?

12. How do plants make their own food?

13. What happens if one part of a food chain is disturbed, such as during a drought?

14. How does land development upset the balance of nature?

15. What is the role of plants in a food chain?

16. What is the role of scavengers in the environment?

17. What is vermicomposting, and what organisms are used in it?

18. How do decomposers help plants grow?

19. How does hunting affect the balance of nature?

20. What is a food web, and how is it different from a food chain?

21. What are some examples of omnivores?

22. How does interdependence between plants and animals help maintain the balance in nature?

23. What does a food chain show?

24. Why are plants called producers?

25. What is the effect of introducing a new species into an environment?

26. What gas do animals provide to plants, and how is it used?

27. How does pollution upset the balance of nature?

28. How do plants and animals co-exist in nature?

29. What are the components needed for photosynthesis besides carbon dioxide?

Answer key - Answer in one line

Prepared by: learnloophq@gmail.com

Answer key - Answer in one line

Prepared by: learnloophq@gmail.com

Chapter: 07. Plants And Animals Depend On Each Other

1. All species of plants and animals play an important role in nature by co-existing in food chains and food webs, maintaining the balance of the environment.
2. Herbivores eat only plants, while carnivores eat other animals.
3. Overgrazing is excessive eating of grass and plants by herbivores, which can lead to the destruction of forests and habitats.
4. Animals depend on plants for oxygen, which is released during photosynthesis and is needed for breathing.
5. Examples of non-living things in the environment are air, water, light, heat, and soil.
6. Animals like birds depend on plants for shelter, using trees and bushes for nesting and protection.
7. Butterflies help in plant reproduction by acting as pollinators, transferring pollen to help plants produce fruits.
8. Consumers are organisms that cannot make their own food and eat plants or other animals for food.
9. Natural causes of imbalance in nature include sudden death of species and natural disasters like forest fires, floods, or diseases.
10. The two main types of living things in the environment are plants and animals.
11. Animals help in seed dispersal by carrying seeds to new locations, aiding plant growth and spread.
12. Plants make their own food through photosynthesis, using carbon dioxide, water, sunlight, and chlorophyll.
13. If one part of a food chain is disturbed, such as grass drying up during a drought, herbivores like deer may die, affecting carnivores like foxes and leopards.
14. Land development upsets the balance of nature by reducing living spaces for other species, destroying habitats, and affecting the populations of plants and animals.
15. Plants act as producers in a food chain, making food that is eaten by herbivores and other consumers.
16. Scavengers feed on the flesh of dead animals, helping to clean up the environment.
17. Vermicomposting is a method of converting wet garbage into manure, using earthworms to enrich the soil.
18. Decomposers break down decaying matter into simpler substances, returning nutrients to the soil for plants to use.
19. Hunting affects the balance of nature by reducing animal populations, which can lead to overpopulation of prey species and overgrazing, disrupting food chains.
20. A food web is a network of interconnected food chains, differing from a food chain, which is a single chain of eating and being eaten, by showing multiple feeding relationships in an environment.
21. Examples of omnivores are bears, pigs, crows, sparrows, squirrels, and peacocks.
22. Interdependence between plants and animals helps maintain the balance in nature by ensuring a stable flow of food, oxygen, and carbon dioxide, as well as supporting shelter, pollination, and seed dispersal, keeping species populations in check.

23. A food chain shows the flow of food energy between different living things in an environment.
24. Plants are called producers because they produce their own food through photosynthesis.
25. Introducing a new species into an environment can upset the balance of nature by disrupting food chains and affecting existing species populations.
26. Animals provide carbon dioxide to plants, which is used in photosynthesis to make food.
27. Pollution upsets the balance of nature by harming plants and animals, destroying habitats, and affecting the populations of various species.
28. Plants and animals co-exist in nature through food chains and food webs, where each species depends on others for food, gas exchange, shelter, and reproduction.
29. The components needed for photosynthesis besides carbon dioxide are water, sunlight, and chlorophyll.

Long Answers

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Chapter: 07. Plants And Animals Depend On Each Other

1. How do decomposers help maintain the balance of nature, and what is an example of their use?

2. What are the different types of consumers, and how do they contribute to the food chain?

3. What is the role of photosynthesis in the interdependence of plants and animals?

4. How do plants and animals depend on each other for food in an environment?

5. What is the balance of nature, and how is it maintained?

6. How can a disturbance in one part of a food chain affect the balance of nature, and what are some examples?

7. What is a food chain, and how does it differ from a food web?

8. What are the human-made factors that upset the balance of nature, and how do they impact the environment?

9. What are the natural causes of imbalance in nature, and how do they affect the environment?

10. How do plants and animals depend on each other beyond food, and what are some examples?

Answer Key (Long Answers)

Answer key - Long Answers
Prepared by: learnloophq@gmail.com

Answer key - Long Answers

Prepared by: learnloophq@gmail.com

Chapter: 07. Plants And Animals Depend On Each Other

1. **How do decomposers help maintain the balance of nature, and what is an example of their use?**
   - **Answer:** Decomposers help maintain the balance of nature by breaking down the decaying matter of dead plants and animals into simpler substances, returning essential nutrients to the soil. These nutrients are then used by plants to grow, ensuring the continuation of the food chain and supporting all living things. An example of their use is earthworms in vermicomposting, where they feed on decaying matter in the soil and enrich it with their faeces, converting wet garbage into manure. This process helps recycle nutrients, keeping the environment healthy and balanced.
   - **Points to remember:** Decomposers = break down dead matter; nutrients = soil; example = earthworms, vermicomposting; balance = nutrient cycle.
2. **What are the different types of consumers, and how do they contribute to the food chain?**
   - **Answer:** The different types of consumers are herbivores, carnivores, and omnivores, each playing a vital role in the food chain. Herbivores, like deer and cows, eat plants, transferring energy from producers to the next level of the chain. Carnivores, like lions and tigers, eat herbivores, with some, called scavengers, like vultures, feeding on dead animals, helping to clean the environment. Omnivores, like bears and crows, eat both plants and animals, linking different parts of the food chain, ensuring the flow of energy through various organisms in the environment.
   - **Points to remember:** Consumers = herbivores, carnivores, omnivores; herbivores = eat plants; carnivores = eat animals, scavengers; omnivores = both; energy flow.
3. **What is the role of photosynthesis in the interdependence of plants and animals?**
   - **Answer:** Photosynthesis plays a crucial role in the interdependence of plants and animals by allowing plants to produce their own food, which serves as the base of the food chain for animals. During photosynthesis, plants use carbon dioxide from the air, water from the soil, sunlight, and chlorophyll to make food, releasing oxygen as a byproduct. Animals depend on this oxygen to breathe, while they breathe out carbon dioxide, which plants use for photosynthesis. This exchange of gases ensures a continuous cycle, supporting the survival of both plants and animals in the environment.
   - **Points to remember:** Photosynthesis = food, oxygen; plants = carbon dioxide, water, sunlight, chlorophyll; animals = oxygen, carbon dioxide exchange.
4. **How do plants and animals depend on each other for food in an environment?**
   - **Answer:** Plants and animals depend on each other for food through a food chain, where plants, as producers, make their own food using photosynthesis, providing energy for animals. Animals, as consumers, eat plants directly if they are herbivores, or eat other animals if they are carnivores or omnivores, transferring energy through the chain. Scavengers feed on dead animals, cleaning up the environment, while decomposers, like bacteria, break down dead plants and animals, returning nutrients to the soil. These nutrients are then used by plants to grow, continuing the cycle of dependence for food in the environment.
   - **Points to remember:** Plants = producers, make food; animals = consumers, eat plants/animals; food chain = energy flow; decomposers = nutrient cycle.
5. **What is the balance of nature, and how is it maintained?**

- **Answer:** The balance of nature is the stable balance in the numbers of each species in an environment, ensuring that no single species overpopulates or disappears, keeping the ecosystem healthy. It is maintained through food chains and food webs, where plants, animals, and decomposers co-exist, with each species playing a role in the flow of energy and nutrients. All species of plants and animals are important, as producers provide food, consumers transfer energy, and decomposers recycle nutrients, supporting interdependence. This co-existence prevents overgrazing, starvation, or habitat destruction, preserving the balance of nature.
- **Points to remember:** Balance = stable species numbers; maintained = food chains, webs; role = all species; co-existence = interdependence.

6. **How can a disturbance in one part of a food chain affect the balance of nature, and what are some examples?**
   - **Answer:** A disturbance in one part of a food chain can affect the balance of nature by altering the numbers of species, disrupting the flow of energy and nutrients, and impacting the entire ecosystem. For example, if all grass dries up during a drought, deer will have no food and may die, leading to a decrease in the number of foxes and leopards that depend on deer for food, causing a ripple effect through the chain. Another example is if foxes and leopards are hunted in large numbers, the deer population may increase, leading to overgrazing of grass and plants, which can destroy forests and habitats. Widespread pesticide use decimates insect populations, reducing food for insectivorous animals like birds and amphibians, which then starves their predators and disrupts plant pollination. This ripple effect ultimately causes a decline in species like frog and snakes. These disturbances show how interconnected species are, and how a change in one part can upset the balance of nature.
   - **Points to remember:** Disturbance = affects balance; examples = drought → deer → foxes; hunting → deer → overgrazing; impact = species numbers.
7. **What is a food chain, and how does it differ from a food web?**
   - **Answer:** A food chain is a single chain of eating and being eaten in an environment, showing the flow of food energy, such as a plant being eaten by a deer, which is then eaten by a lion, followed by scavengers and decomposers. It represents a linear path of energy transfer from producers to consumers and decomposers. A food web, however, is a network of many interconnected food chains, showing the complex feeding relationships among various organisms in an environment. Unlike a food chain, a food web illustrates how most plants and animals are part of multiple chains, providing a more complete picture of energy flow.
   - **Points to remember:** Food chain = single energy flow; example = plant → deer → lion; food web = multiple chains; interconnected = complex.
8. **What are the human-made factors that upset the balance of nature, and how do they impact the environment?**
   - **Answer:** Human-made factors that upset the balance of nature include deforestation, land development, pollution, the introduction of new species, and hunting, each causing significant environmental damage. Deforestation and land development destroy habitats, reducing living spaces for plants and animals, while pollution harms species and disrupts ecosystems, affecting their survival. The introduction of new species can disrupt food chains by competing with or preying on existing species, and hunting reduces animal populations, leading to imbalances, such as overgrazing by herbivores if predators are removed. These actions impact the environment by altering species numbers, destroying habitats, and disrupting the natural balance, making it challenging for ecosystems to recover.

- **Points to remember:** Human-made = deforestation, land development, pollution, new species, hunting; impact = habitats, species; example = overgrazing.

9. **What are the natural causes of imbalance in nature, and how do they affect the environment?**
   - **Answer:** Natural causes of imbalance in nature include the sudden death of a species and natural disasters, such as forest fires, floods, and diseases, which disrupt the environment. These events can affect the environment by reducing the population of certain species, destroying habitats, and altering food chains, leading to an imbalance in species numbers. For example, a drought can dry up grass, causing herbivores like deer to die from lack of food, which then affects carnivores like foxes that depend on them, disrupting the food chain. Such natural disturbances can have long-lasting effects on the ecosystem, making it difficult to maintain the balance of nature.
   - **Points to remember:** Natural causes = sudden death, disasters; disasters = forest fires, floods, diseases; affect = species, habitats; example = drought.
10. **How do plants and animals depend on each other beyond food, and what are some examples?**
   - **Answer:** Plants and animals depend on each other beyond food through gas exchange, shelter, pollination, and seed dispersal, ensuring their survival and reproduction. Plants release oxygen during photosynthesis, which animals need to breathe, while animals breathe out carbon dioxide, which plants use for photosynthesis, creating a vital gas exchange cycle. Animals, such as birds, squirrels, and monkeys, depend on plants for shelter, using trees for nesting and protection, while plants depend on animals like bees and butterflies for pollination to produce fruits and seeds for reproduction. Additionally, animals help in seed dispersal, carrying seeds to new locations, aiding plant growth, as seen with birds spreading seeds through their droppings.
   - **Points to remember:** Beyond food = gas exchange, shelter, pollination, seed dispersal; examples = oxygen, carbon dioxide, bees, birds.

Image Based Questions

Prepared by: learnloophq@gmail.com

Chapter: 07. Plants And Animals Depend On Each Other

Question 1.

Questions:

a. Identify the producer in the image.

b. Name the herbivore shown in the image.

c. What role does the vulture play in the ecosystem depicted in the image?

Answers:

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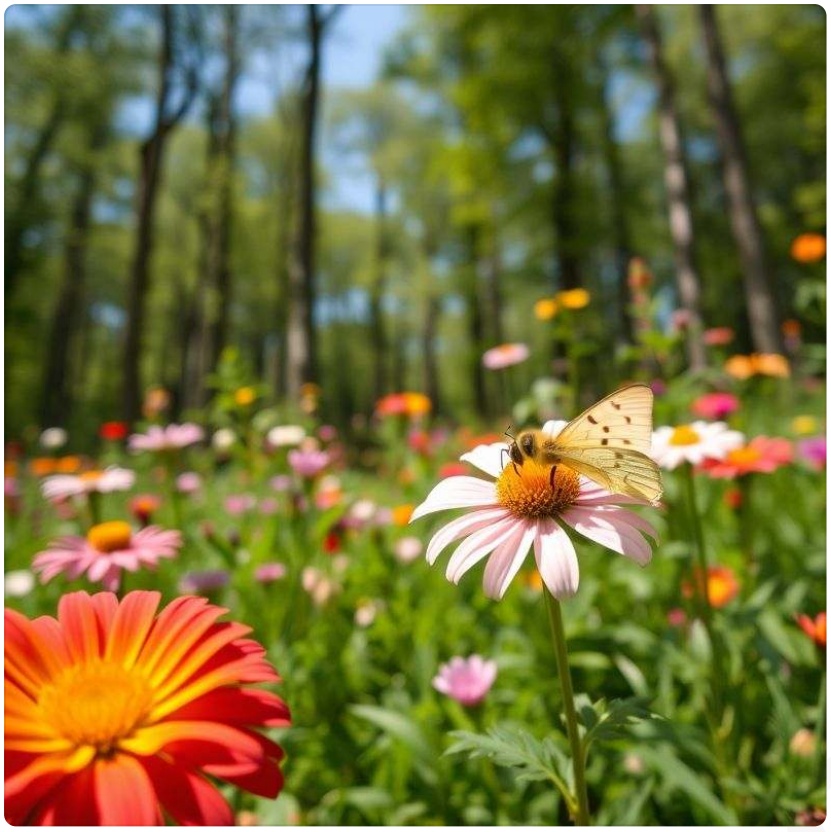
Question 2



Questions:

a. What process are the plants in the image undergoing to produce food?

b. What role do the bee and butterfly play in the life cycle of the plants?

c. How do the plants benefit animals like bees and butterflies?

Answers:

Question 3.

Questions:

a. What type of organisms are shown on a log?

b. What is the role of these organisms in the ecosystem?

c. How do plants benefit from the actions of these organisms?

Answers:

_____

_____

_____

_____

_____

_____

_____

Question 4

Questions:

a. Identify the producer, herbivore, carnivore, and scavenger in the food chain shown in the image.

b. What would happen to the food chain if the grass dried up due to a drought?

c. How does the food chain shown in the image help maintain the balance of nature?

Answers:

_____

_____

_____

_____

_____

_____

_____

Question 5

Questions:

a. What human-made factor is shown in the image that affects the balance of nature?

b. How does this factor impact the animals shown in the image?

c. What could be a long-term effect on the food chain in this ecosystem?

Answers:

Answer key - Image Based Questions

Prepared by: learnloophq@gmail.com

Answer key - Image Based Questions

Prepared by: learnloophq@gmail.com

Chapter: 07. Plants And Animals Depend On Each Other

Question 1.

Answers:

- a. The producer in the image is the grass, as it makes its own food through photosynthesis.
- b. The herbivore shown in the image is the deer, as it eats plants like grass.
- c. The vulture plays the role of a scavenger, feeding on the flesh of dead animals in the ecosystem.

Question 2

Answers:

- a. The plants in the image are undergoing photosynthesis to produce food, using sunlight, carbon dioxide, and water.
- b. The bee and butterfly play the role of pollinators, helping plants reproduce by transferring pollen from one flower to another.
- c. Plants benefit animals like bees and butterflies by providing nectar as a food source, which the animals collect for energy.

Question 3.

Answers:

- a. The organisms shown breaking down the decaying log are decomposers, such as mushrooms (fungi), earthworms, and bacteria.
- b. These organisms play the role of decomposers, breaking down the nutrients in dead plants and animals into simpler substances like manure that return to the soil.
- c. Plants benefit from the actions of decomposers as the nutrients released into the soil are used by plants to grow.

Question 4

Answers:

- a. In the food chain, the producer is grass, the herbivore is the rabbit, the carnivore is the fox, and the scavenger is the vulture.
- b. If the grass dried up due to a drought, the rabbit would have no food and could die, leading to a decrease in the fox population due to lack of prey, and the vulture might also be affected due to fewer dead animals to feed on.
- c. The food chain helps maintain the balance of nature by ensuring a stable balance in the numbers of each species, preventing overpopulation or extinction of any one species.

Question 5

Answers:

- a. The human-made factor shown in the image is **deforestation**, which destroys habitats and affects the balance of nature.
- b. Deforestation impacts the animals by **destroying their shelter, forcing them to flee, and reducing their food sources**, which can lead to a **decline in their population**.
- c. A long-term effect on the food chain could be the disruption of the balance, such as a **decrease in herbivores** due to lack of plants, leading to a **decline in carnivores and scavengers**, and an overall **imbalance in the ecosystem**.

Question Paper

Prepared by: learnloophq@gmail.com

Subject: Science 07. Plants and Animals Depend on Each Other

1. Multiple Choice Questions (MCQs): (Choose the best answer)

1. Which of the following are called producers because they make their own food?
   (a) Lions
   (b) Plants
   (c) Rabbits
   (d) Fungi
2. An animal that eats only plants is called a:
   (a) Carnivore
   (b) Herbivore
   (c) Omnivore
   (d) Decomposer
3. Which of these is an example of a scavenger?
   (a) Deer
   (b) Tiger
   (c) Vulture
   (d) Bear
4. The process by which plants make their own food using sunlight, water, and carbon dioxide is called:
   (a) Respiration
   (b) Digestion
   (c) Photosynthesis
   (d) Decomposition
5. What do animals breathe out that plants need for photosynthesis?
   (a) Oxygen
   (b) Carbon Dioxide
   (c) Nitrogen
   (d) Water Vapour

2. Fill in the Blanks:

1. All living beings need ..... to stay alive.
2. Animals that eat both plants and other animals are called ..... .
3. Bacteria and fungi are examples of ..... that break down dead plants and animals.
4. A ..... shows the flow of food energy between different living things, like grass being eaten by a deer, which is then eaten by a lion.
5. Many interconnected food chains in an ecosystem make a ..... .
6. Plants depend on animals like bees and butterflies for ....., which helps them produce fruits.

3. True/False Questions: (Write 'True' or 'False')

1. Animals can produce their own food. (.....)
2. A lion is an example of a herbivore. (.....)
3. Decomposers return nutrients to the soil by breaking down dead organisms. (.....)
4. Plants release oxygen during photosynthesis, which animals need to breathe. (.....)
5. The balance of nature is not affected if one species in a food chain disappears. (.....)
6. Air, water, and soil are living components of the environment. (.....)

4. Short Answer Questions:

1. What are consumers? Give one example.

   _____

   _____

2. Besides food and oxygen, name one other way animals depend on plants.

   _____

   _____

3. What is the main difference between a herbivore and a carnivore?

   _____

   _____

4. List one natural cause and one human-made cause of imbalance in nature.

   _____

   _____

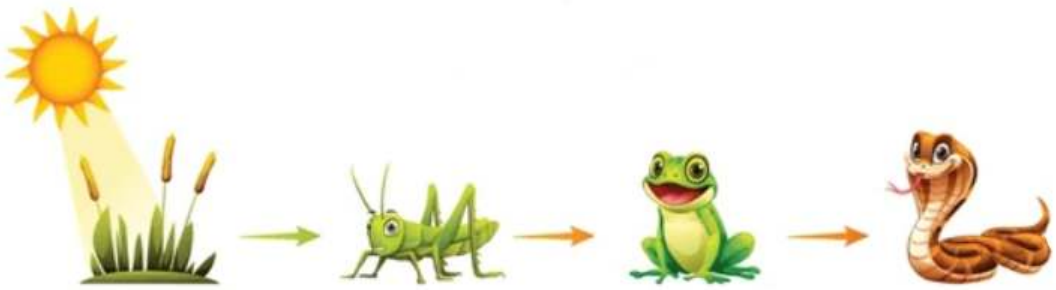
5. How do animals help plants with seed dispersal?

   _____

   _____

5. Diagram-Based Questions:

1. **Diagram 1:**



a. What does this diagram represent?

_____

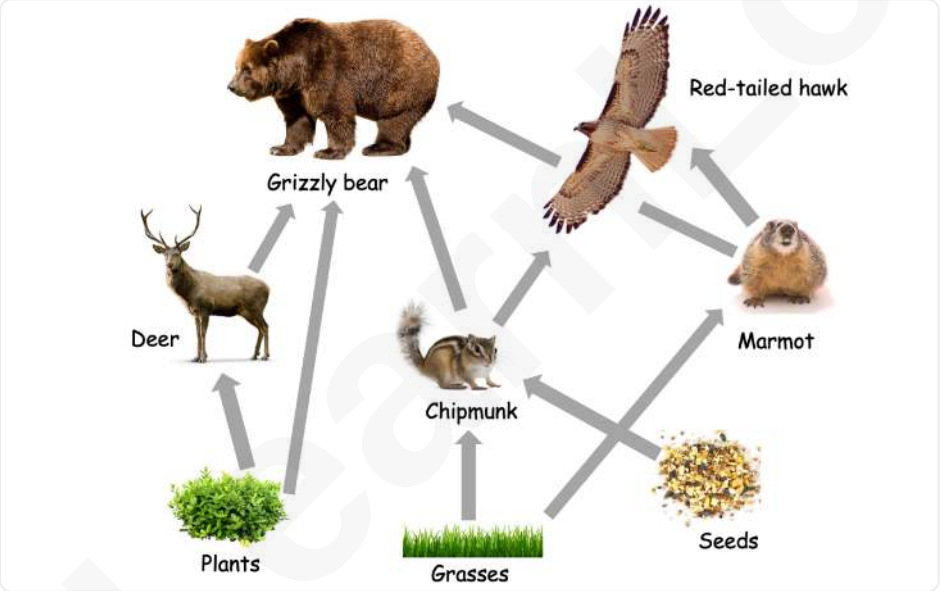
b. Identify the producer in this diagram.

_____

c. If all the frogs were removed, which animal population might increase, and which might decrease?

_____

1. **Diagram 2:**



a. What is the difference between this diagram (a food web) and a single food chain?

_____

b. From a typical food web like this, name one omnivore and what it might eat.

_____

6. Scientific Reasons:

1. Why are plants essential for the survival of animals on Earth? (Give at least two key reasons related to what plants provide).

_____

2. Why are decomposers called "nature's recyclers"?

3. Why do plants need non-living things like sunlight and water?

7. Differentiate Between Concepts:

1. Explain the difference between a **producer** and a **consumer**, giving an example of each.

2. Explain the difference between a **scavenger** and a **carnivore** (that hunts live prey).

8. Explanations of Terms:

1. Define 'photosynthesis'.

2. Define 'interdependence' in the context of plants and animals in an ecosystem.

3. Define 'food web'.

9. Examples:

1. Give two examples of omnivores mentioned in your chapter.

2. Give one example of how an animal helps a plant in pollination.

3. Give two examples of decomposers.

10. Complete the Series:

1. Plant : Producer :: Cow : .....
2. Grass → Deer → ..... (Complete the food chain with a suitable carnivore)
3. Sunlight, Water, Carbon Dioxide : taken by plants :: : ..... : release by Plants

11. Identifying Concepts/Processes:

1. A deer eats grass, and a tiger eats the deer. What is this sequence called, and what fundamental thing does it show the movement of?

2. When birds eat fruits and then fly to different places, they excrete the seeds. What important process for plants are the birds helping with? Explain its importance.

12. Observation-Based Questions:

1. If you observe a fallen log in a forest slowly breaking down and becoming part of the soil over many months, what group of organisms is mainly responsible for this change? What is this process called?

2. Imagine a large area of forest is cleared for building houses (deforestation). What are two likely effects you would observe on the local animal populations that depended on that forest?

13. Scientific Reasoning and Application:

1. If a new, unknown disease suddenly killed all the green plants in an area, explain the step-by-step impact this would have on the herbivores and then the carnivores in that area.

_____

_____

2. Your chapter mentions earthworms are used in "vermicomposting." Based on what you learned about decomposers, explain how earthworms help in making manure from wet garbage.

_____

_____

14. Environmental Awareness:

1. How can hunting too many predators (like foxes or leopards) disturb the balance of nature and potentially harm the plants in an area?

_____

_____

_____

2. Explain one way human activities like pollution (e.g., chemicals in water) can negatively affect a food chain.

_____

_____

_____

15. Everyday Science:

1. Think about the lunch you ate today. Can you create a simple food chain with at least three living things, where one of the items you ate (or its source) is part of that chain? (e.g., if you ate chicken: Sun -> Corn (chicken feed) -> Chicken -> You)

_____

_____

2. Why is planting more trees beneficial for both the air quality and for providing shelter to many animals?

_____

_____

16. Matching Pairs:

Match the term in Column A with its correct description or example in Column B.

Column A	Column B
1. Producer	A. Eats only plants
2. Herbivore	B. Feeds on dead animals
3. Carnivore	C. Makes its own food
4. Omnivore	D. Breaks down dead plants and animals
5. Scavenger	E. Eats both plants and animals
6. Decomposer	F. Eats other animals (hunts live prey)
7. Food Chain	G. Interconnected food chains
8. Food Web	H. Shows the flow of energy (e.g., Grass → Rabbit → Fox)

Answer Key
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5_science_Plants_and_Animals_Depend_on_Each_Other_qp.pdf

Answer Key

Prepared by: learnloophq@gmail.com

Answer Key Chapter 07. Plants and Animals Depend on Each Other

1. Multiple Choice Questions (MCQs):

1. **(b) Plants**
2. **(b) Herbivore**
3. **(c) Vulture**
4. **(c) Photosynthesis**
5. **(b) Carbon Dioxide**

2. Fill in the Blanks:

1. food
2. omnivores
3. decomposers
4. food chain
5. food web
6. pollination

3. True/False Questions:

1. False
2. False
3. True
4. True
5. False
6. False (They are non-living components)

4. Short Answer Questions:

1. Consumers are living beings that cannot make their own food and get energy by eating plants or other animals. Example: Cow, Lion, Bear.
2. Animals get shelter (e.g., birds in trees) from plant and **decomposers**, like bacteria, break down dead plants and animals, **returning nutrients to the soil**. that is used by plants to grow.
3. A herbivore eats only plants, while a carnivore eats other animals.
4. Natural cause: Forest fire, flood, disease. Human-made cause: Deforestation, pollution, hunting. (Any one of each)

5. Animals help in seed dispersal by eating fruits and then excreting the seeds in different places, or by carrying seeds on their fur to new locations.

5. Diagram-Based Questions:

1. **Diagram 1:** (Sun -> Grass -> Grasshopper -> Frog -> Snake)
   a. This diagram represents a food chain.
   b. The producer is Grass.
   c. If all the frogs were removed, the Grasshopper population might increase (as their predator is gone), and the Snake population might decrease (as their food source is reduced).
2. **Diagram 2:** (Food web)
   a. A food web shows multiple interconnected food chains, representing more complex feeding relationships in an ecosystem, while a single food chain shows only one pathway of energy flow.
   b. Omnivore: Bear (eating grass, Deer and small animals).

6. Scientific Reasons:

1. Plants are essential for animals because:
   - They produce food (they are producers at the base of most food chains).
   - They release oxygen during photosynthesis, which animals need to breathe.
   - The provide shelter to most of the animals.
2. Decomposers are called "nature's recyclers" because they break down dead plants and animals into simpler substances (nutrients), which return to the soil. These nutrients are then used by plants to grow, thus continuing the cycle of life, decomposers play an important part in balance of nature.
3. Plants need non-living things like sunlight as an energy source for photosynthesis, and water as a raw material for photosynthesis and for transporting nutrients.

7. Differentiate Between Concepts:

1. A **producer** is an organism (like a plant) that can make its own food, usually through photosynthesis. Example: Grass. A **consumer** is an organism that cannot make its own food and gets energy by eating plants or other animals. Example: Rabbit, Lion.
2. A **scavenger** (like a vulture) feeds on the flesh of animals that are already dead. A **carnivore** (that hunts live prey, like a tiger) typically hunts and kills live animals for food.

8. Explanations of Terms:

1. **Photosynthesis:** The process by which green plants use sunlight, water, and carbon dioxide to create their own food (sugars/glucose) and release oxygen.
2. **Interdependence:** The way in which plants and animals (and other organisms) rely on each other for survival within an ecosystem. For example, animals depend on plants for food and oxygen, and plants depend on animals for pollination and seed dispersal.
3. **Food web:** A model that shows how many different food chains are interconnected in an ecosystem, illustrating the complex feeding relationships between various organisms.

9. Examples:

1. Bears, pigs, crows, sparrows, squirrels, peacocks. (Any two)
2. A bee collecting nectar from a flower also picks up pollen and transfers it to another flower, helping the plant to produce seeds.
3. Bacteria, fungi, worms, insects. (Any two)

10. Complete the Series:

1. Consumer)
2. Lion (or Tiger, Leopard, Fox, etc. – any suitable carnivore that eats deer)
3. Oxygen

11. Identifying Concepts/Processes:

1. This sequence is called a **food chain**. It shows the flow of **energy** from one organism to another.
2. The bees are helping with **pollination**. It is important because it allows plants to produce fruits and seeds, which are necessary for the plant to reproduce and create new plants.

12. Observation-Based Questions:

1. **Decomposers** (like bacteria and fungi) are mainly responsible. This process is called **decomposition**.
2. Two likely effects:
    - A decrease in the populations of animals that used the forest for food or shelter.
    - Animals might migrate to other areas, potentially increasing competition there.
    - Some animals might die if they cannot find new suitable habitats.

13. Scientific Reasoning and Application:

1. If all green plants died:
    - Herbivores would lose their primary food source and would start to die from starvation.
    - With the decline in herbivores, carnivores that prey on those herbivores would also lose their food source and their populations would then decline due to starvation.
    - The entire food web would collapse.
2. Earthworms are decomposers. They eat decaying organic matter (like wet garbage). As they digest this matter, they break it down into simpler, nutrient-rich substances. Their faeces (castings) enrich the soil, creating manure that helps plants to grow.

14. Environmental Awareness:

1. Hunting too many predators can lead to an increase in the population of their prey (e.g., if foxes are hunted, rabbit/deer populations might increase). These increased herbivore populations can then **overgraze**, eating too many plants and potentially **destroying vegetation** in an area, thus disturbing the balance.

2. Pollution, like chemicals from factories entering a river, can kill aquatic plants. This removes a food source for small aquatic animals. These small animals might die or become contaminated. Larger animals that eat these smaller animals can then also be poisoned or lose their food source, affecting the entire food chain.

15. Everyday Science:

1. *(Answers will vary based on student's lunch. Example provided in question: Sun -> Corn (chicken feed) -> Chicken -> You. Another example: Sun -> Wheat Plant -> Flour (for bread) -> You)*
2. Planting more trees is beneficial because:
    - Trees take in carbon dioxide and release oxygen during photosynthesis, which improves air quality for breathing.
    - Trees provide shelter, homes (habitats), and food for many animals (birds, insects, squirrels, etc.).

16. Matching Pairs:

Column A	Column B	Answer
1. Producer	A. Eats only plants	C
2. Herbivore	B. Feeds on dead animals	A
3. Carnivore	C. Makes its own food	F
4. Omnivore	D. Breaks down dead plants and animals	E
5. Scavenger	E. Eats both plants and animals	B
6. Decomposer	F. Eats other animals (hunts live prey)	D
7. Food Chain	G. Interconnected food chains	H
8. Food Web	H. Shows the flow of energy (e.g., Grass → Rabbit → Fox)	G