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## Introduction to Environment

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The environment is our basic life support system. It provides the air we breathe, the water we drink, the food we eat, and the land where we live. Human beings modify this natural environment in various ways, such as through car fumes polluting the air, collecting water in pots, serving food in vessels, and using land to build factories. These modifications include making cars, mills, factories, and manufacturing containers, which change the natural environment.



This image shows a dense forest with lush green vegetation. It includes trees and plants that provide oxygen and shelter for animals. Leaves help in photosynthesis, the process by which plants make food using sunlight, water, and carbon dioxide. Fern plants reproduce through spores, and the underbrush consists of smaller plants and young trees that provide habitat and food for many small animals and insects. Such dense vegetation indicates rich biodiversity, meaning many different species live together, creating a balanced ecosystem. Forests maintain air quality, help control climate, and protect soil from erosion.

## Meaning and Components of Environment

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Environment refers to everything that surrounds living organisms, including natural and human-made elements. Natural components include air, water, land, plants, and animals. Human-made components are buildings, parks, bridges, roads, industries, and monuments. Human components involve individuals, families, communities, religion,

education, economy, and political situations. Together, these components interact and influence life on Earth.

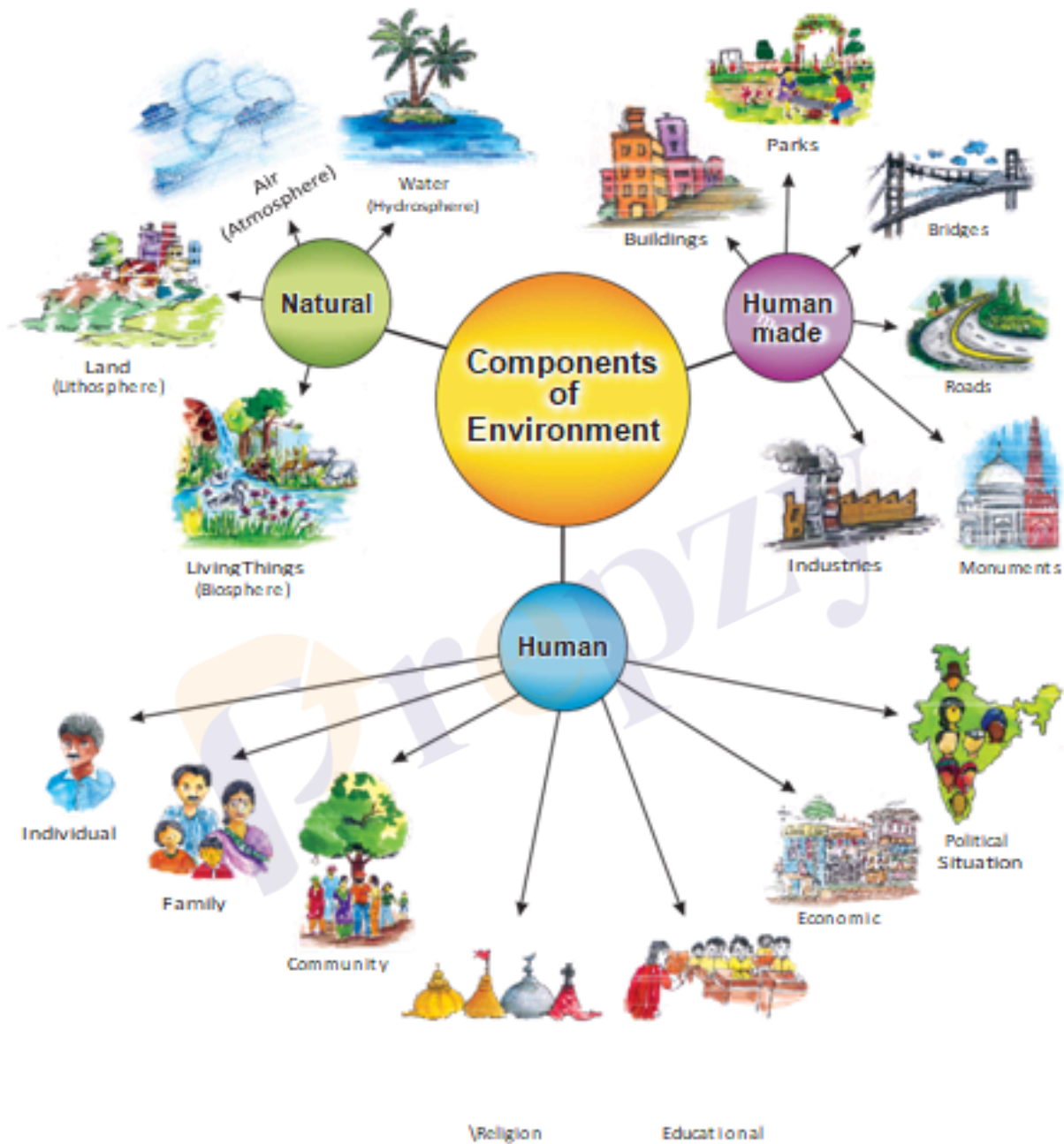


Fig.1.1: Components of Environment

## Natural Components of Environment

These are elements occurring naturally without human interference, such as air (atmosphere), water (hydrosphere), land (lithosphere), and living things (biosphere).

## Human-made Components of Environment

These include structures and modifications made by humans like buildings, parks, bridges, roads, industries, and monuments.

## Human Components of Environment

This category includes social and individual aspects such as individuals, families, communities, religion, education, economy, and political situations.

## Domains of the Environment

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The environment is divided into four main domains: atmosphere, hydrosphere, lithosphere, and biosphere.



*Fig.1.2:Domains of the Environment*

## Atmosphere

The atmosphere is the layer of gases surrounding the Earth, essential for breathing and protecting living organisms from harmful solar radiation. It mainly consists of nitrogen and oxygen.

## Hydrosphere

The hydrosphere includes all water bodies such as oceans, rivers, lakes, glaciers, and moisture in the air, supporting aquatic life and essential for all living beings.

## Lithosphere

The lithosphere is the solid outer part of the Earth, including mountains, soil, and landforms. It provides minerals, nutrients, and land for agriculture and human settlements.

## Biosphere

The biosphere encompasses all ecosystems where life exists, including parts of the atmosphere, hydrosphere, and lithosphere. It is the global sum of all ecosystems.

## Ecosystem

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An ecosystem is a system formed by the interaction of all living organisms with each other and with the physical and chemical factors of their environment. It includes producers (plants), consumers (animals), and decomposers (bacteria and fungi) linked by the transfer of energy and materials.



*Fig.1.3: A Pond Ecosystem*

This image shows a pond ecosystem with water sources, plants like trees and water lilies, animals such as birds, cows, deer, ducks, and insects. These components interact to maintain balance through nutrient cycling and energy flow.

## Human Environment

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Humans interact with and modify the environment to meet their needs. Early humans adapted to natural surroundings, leading simple lives. Over time, needs grew, leading to agriculture, domestication of animals, invention of the wheel, barter system, trade, industrial revolution, and information revolution. A balance between natural and human environments is necessary for sustainable living.

## Solved Examples

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## Example 1: Define environment and its components.

**Answer:** Environment is the combination of natural and human-made surroundings that affect living organisms. Its components include natural (air, water, land, living things), human-made (buildings, roads, industries), and human (individuals, families, communities) components.

## Example 2: What is an ecosystem? Give an example.

**Answer:** An ecosystem is a system formed by the interaction of living organisms with each other and their physical environment. Example: A pond ecosystem with plants, animals, water, and soil interacting.

## Practice Set

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### Easy

- What are the natural components of the environment?
- Define lithosphere.

### Moderate

- Explain the role of the atmosphere in supporting life.
- Describe the human components of the environment.

### Challenging

- Discuss how human activities modify the natural environment.
- Explain the importance of maintaining a balance between natural and human environments.

# Answer Key

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## Easy

- Natural components include air, water, land, plants, and animals.
- Lithosphere is the solid crust or hard top layer of the Earth made up of rocks and minerals.

## Moderate

- The atmosphere provides air for breathing, protects from harmful solar radiation, and influences weather and climate.
- Human components include individuals, families, communities, religion, education, economy, and political situations.

## Challenging

- Human activities like building factories, roads, and vehicles modify the natural environment by changing air quality, water bodies, and land use.
- Maintaining balance ensures sustainable use of resources, protects ecosystems, and supports life on Earth.

## Quick Reference

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- **Environment:** Surroundings including natural and human-made elements.
- **Natural Components:** Air, water, land, living organisms.
- **Human-made Components:** Buildings, roads, industries.
- **Human Components:** Individuals, families, communities, social systems.
- **Domains of Environment:** Atmosphere, Hydrosphere, Lithosphere, Biosphere.
- **Ecosystem:** Interaction of living organisms with their environment.

# Glossary

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- **Atmosphere:** The layer of gases surrounding the Earth.
- **Hydrosphere:** All water bodies on Earth.
- **Lithosphere:** The solid outer part of the Earth.
- **Biosphere:** The global sum of all ecosystems where life exists.
- **Ecosystem:** A community of living organisms interacting with their environment.
- **Biotic:** Living components of the environment like plants and animals.
- **Abiotic:** Non-living components like land and water.
- **Photosynthesis:** Process by which plants make food using sunlight.

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