

A long-exposure photograph of a waterfall in a dense, green forest. The water is blurred into white streaks as it falls over moss-covered rocks. The surrounding vegetation is thick and vibrant green. The scene is captured from a low angle, looking up at the waterfall.

# Environment: An Introduction

Dr. Prasenjit Adak



# What We Have Done!



**This PPT should be used as reference only. Reading books (mentioned in syllabus) is mandatory for the preparation of the examinations.**

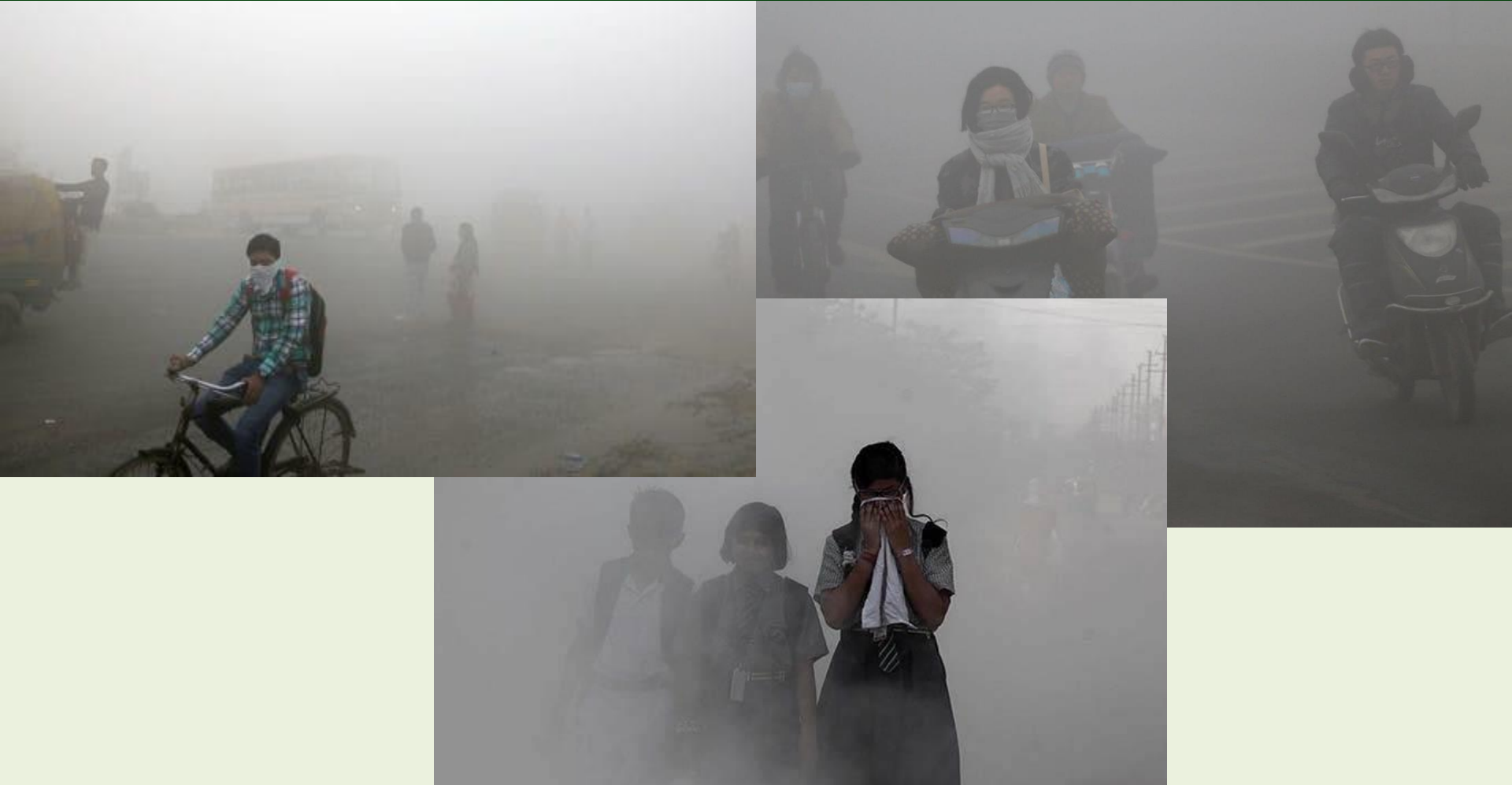


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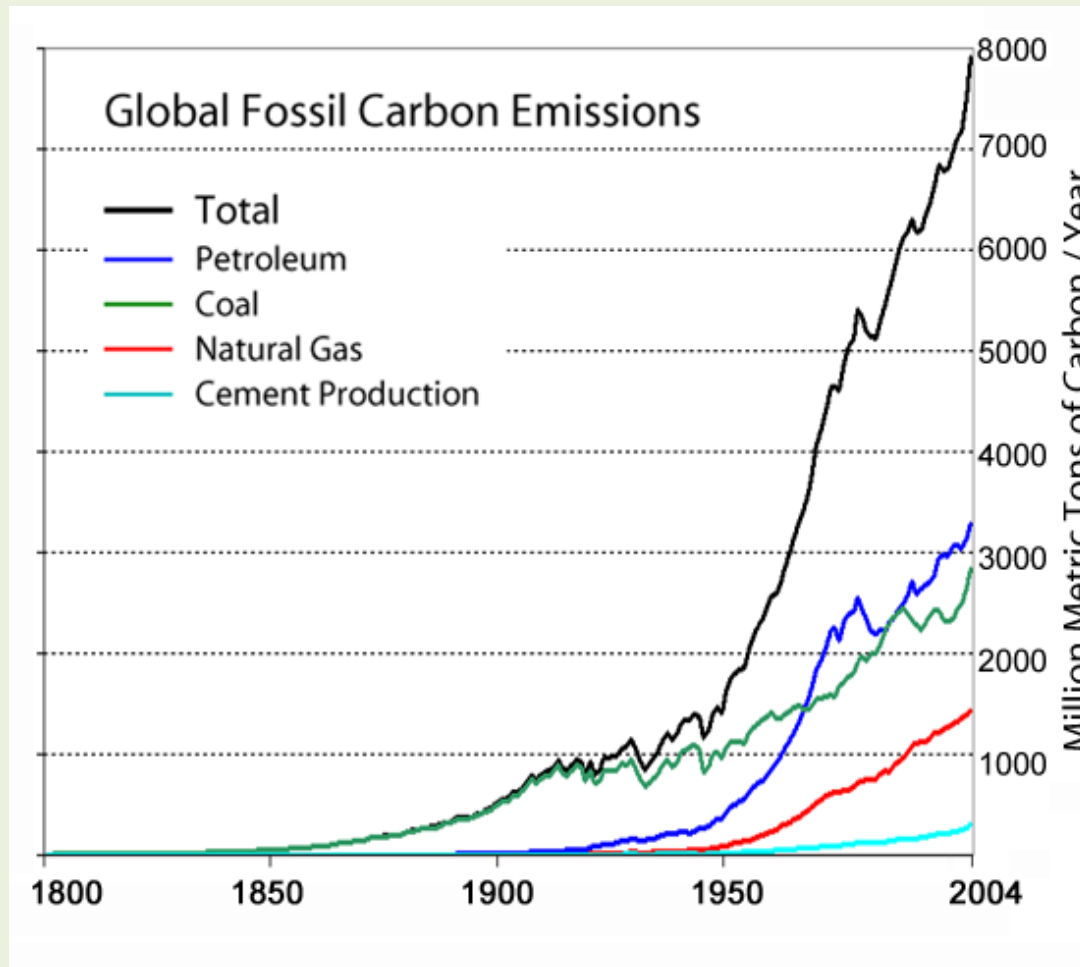


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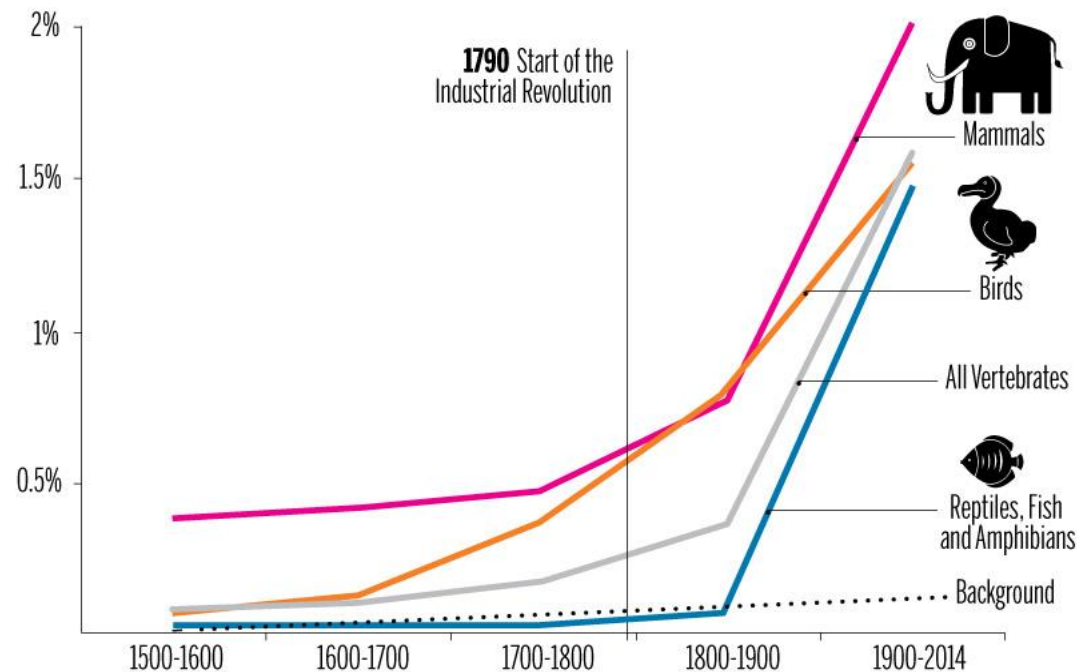


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# What We Have Done!

## VERTEBRATE SPECIES EXTINCTION RATES

Cumulative, recorded as “extinct” or “extinct in the wild”



SOURCE: CEballos et al. Sci. Adv. 2015;1:e1400253 | GRAPHIC: Amanda Shendruk

MACLEAN'S

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# What We Have Done!

“For what I've done  
I start again  
And whatever pain may come  
Today this ends  
I'm forgiving what I've done”

- *Linkin Park*

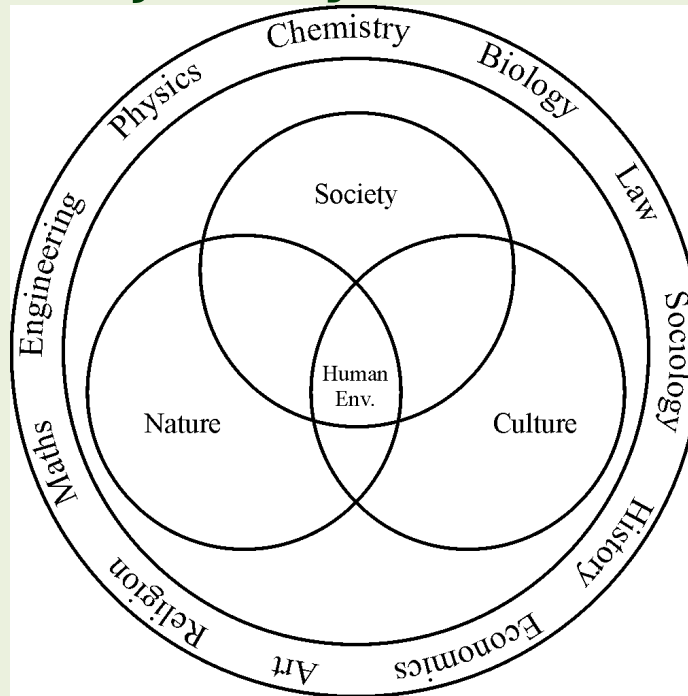


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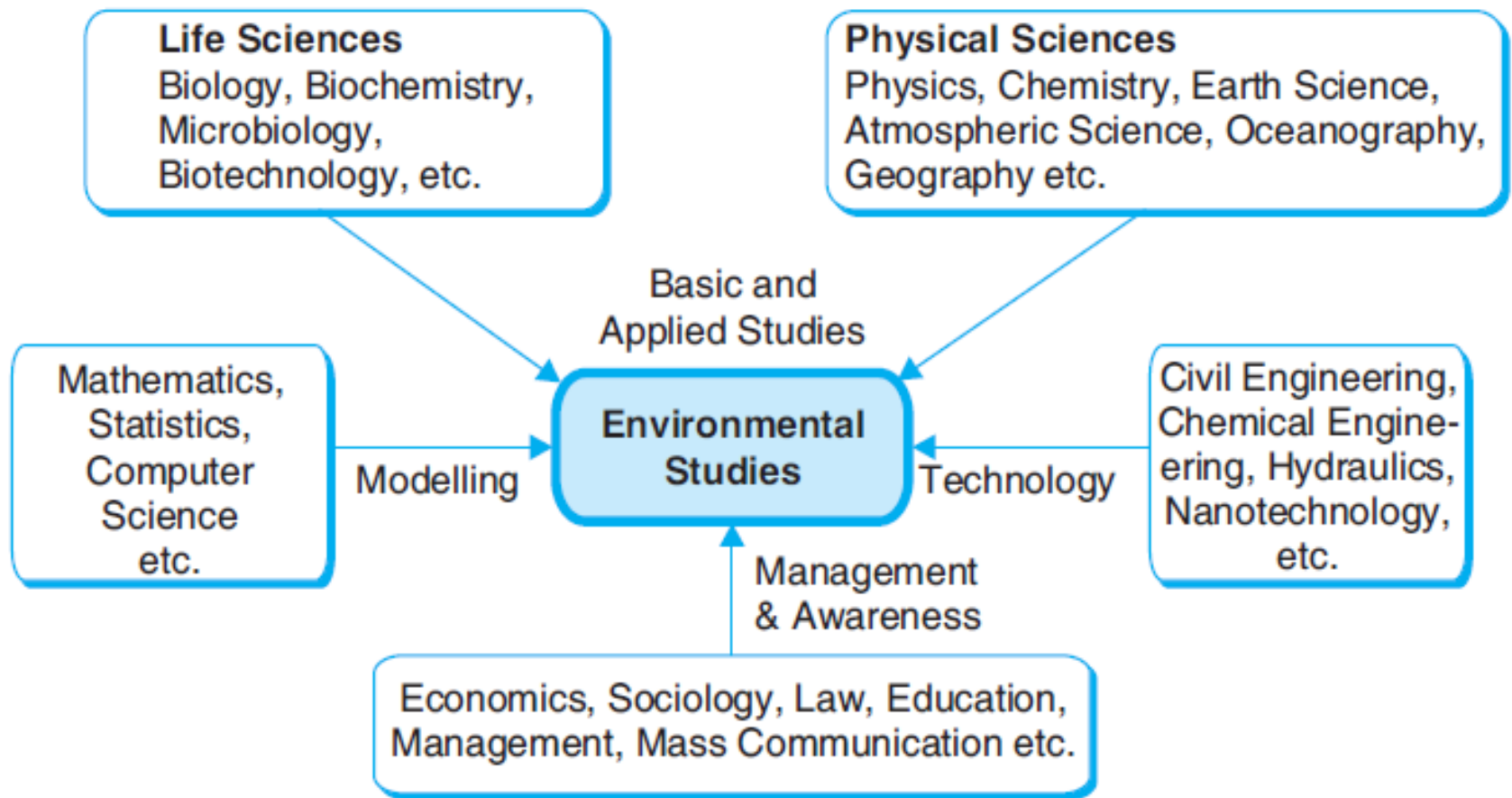


# Why we are studying this subject?

- “Environmental Studies” is a Multidisciplinary subject.



# Multidisciplinary Nature of Environmental Studies





# They are not the same

- **Environmental Studies**

- It is a broad interdisciplinary field of study which studies the interaction of human beings with the environment.

- **Environmental Science**

- It is an interdisciplinary academic field that integrates physical, chemical and biological sciences to address the environmental problems.

- **Environmental Engineering**

- It is the application of science and engineering principles to improve the quality of environment to provide healthy living conditions.

# Importance of Environmental Studies

- To get basic knowledge of our surroundings.
- To develop skills for identifying and solving environmental problems in our surroundings.
  - **World population** is increasing at an alarming rate especially in developing countries.
  - The **natural resources** endowment in the earth is limited.
  - The methods and **techniques of exploiting** natural resources are advanced.
  - The resources are **over-exploited** and there is no foresight of leaving the resources to the **future generations**.
  - The urban area, coupled with industries, is major sources of **pollution**.
  - The pollution and degraded environment seriously **affect the health** of all living things on earth , including man.
  - Education and training are needed to save the biodiversity and **species extinction**.



# Importance of Environmental Studies

- To maintain ecological balance and to strive to achieve sustainable development.
- To educate people for their duties towards environmental protection.

# Scope of Environmental Studies

- Ecosystem and Biodiversity protection
- Natural resource conservation
- Environmental pollution control
- Environmental management
- Industry
- Research and development
- Social development
- Environmental journalism
- Environmentalist / Consultant
- Green advocacy
- Green marketing



# What is environment?

- Everything that surrounds and affects living organism is called Environment.
- It is the sum total of all social, economical , biological , physical and chemical factors which constitute the surroundings of humans, who are both the creators and moulders of the environment.

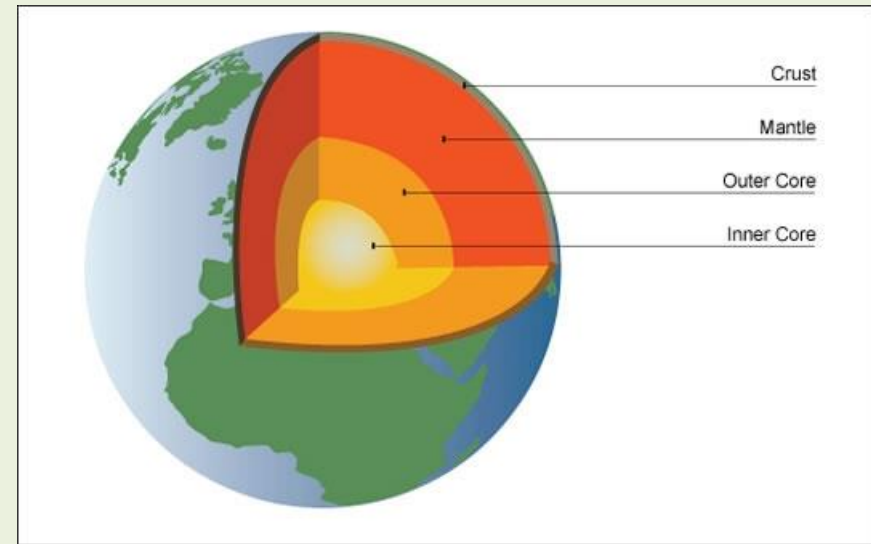
# Types of Environment

- **Natural Environment**
  - Components such as air, water, soil, land, forest, wildlife, flora , fauna, etc. constitute the Natural Environment.
- **Anthropogenic Environment**
  - Alteration of the natural environment to serve specific uses by the human beings is termed as Anthropogenic Environment. For eg agricultural field is an anthropogenic environment and so are the gardens and aquaculture farms.

# Spheres of Earth

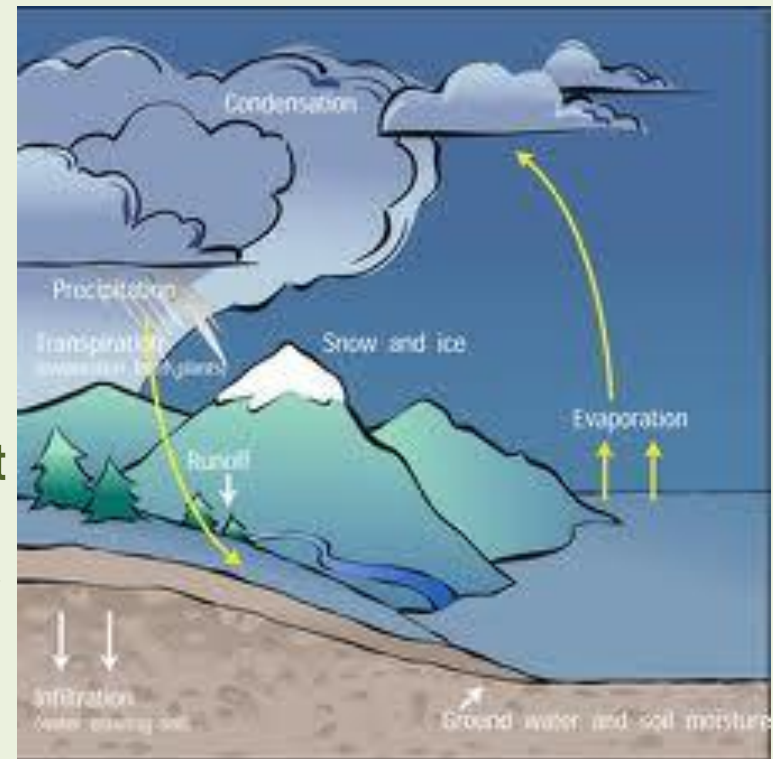
## ■ Lithosphere (Land)

- The lithosphere is made up of all the hard and solid land mass on the earth's surface, the semi-solid rocks (molten materials) underneath the earth crust, and the liquid rocks in the inner core of the earth. Lithosphere is further divided into sub-spheres namely the crust, the mantle, the outer core, and the inner core. The rock materials are divided into three primary categories based on how they are formed namely igneous rocks, sedimentary rocks, and metamorphic rocks.



# Spheres of Earth

- Hydrosphere (Water)
  - The hydrosphere includes all the gaseous, liquid, and solid water of the planet earth. The natural earth features depicting the hydrosphere are the rivers, streams, lakes, seas, oceans and the water vapor. Glaciers, which are the slowly moving masses of ice, are also part of the hydrosphere. The earth's temperature is highly influenced by the hydrosphere. The glaciers, icebergs, and icecaps are also categorically called the cryosphere.





# Spheres of Earth

- Atmosphere (Air)
  - All the air in the atmosphere makes up the atmosphere. The atmosphere is a mixture of nitrogen (about 78%), oxygen (about 21%), and other gasses (about 1%) such as carbon dioxide (0.039%), argon (0.93%) and the rest are trace gases (krypton, neon, helium , and xenon).
  - layers of the atmosphere include the troposphere, mesosphere, thermosphere, and the exosphere.



# Spheres of Earth

- **Biosphere (Living Things)**
  - All the living things in the planet are categorized under the biosphere. In this view, the biosphere includes all of the animals, plants, and microorganisms of earth. Biosphere interact with the physical aspects of the earth including the hydrosphere, lithosphere, and the atmosphere. Deserts, forests, grasslands, aquatic, tundra, and chaparral are the six main biomes that are present in the biosphere.

