Components of Envrionment

4 Major Components	
Lithosphere	Litho = Rock
Hydrosphere	Hydro = Water
Atmosphere	Atmo = Air
Biosphere	Bio = Life

The planet Earth is categorised into different spheres which represent solid [rock/soil], liquid [water], and gaseous [air] phases. The overlapping zone of the three spheres is called the biosphere, where life can exist.

Atmosphere: (Greek: Atmos means vapor)

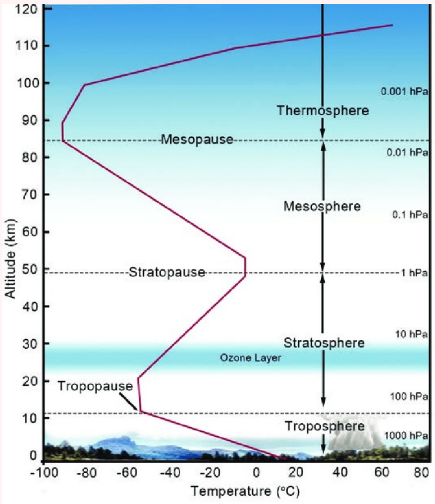
✦gaseous mixture which envelops the planet earth is called atmosphere

✦Content of water vapor, density of the air mass and atmospheric pressure decreases rapidly with the increase in altitude

Composition of dry air

Component	*Volume %*
Nitrogen	78%
Oxygen	20%
Argon	0.9%
CO2	0.04%
Gases in Traces	Remaining

Layers of atmosphere & temperature



The rate of change of temperature with the altitude is called lapse rate. The atmosphere has
been stratified into major four layers where temperature decreases (negative lapse rate) or
increases (positive lapse rate).

Lithosphere: (Greek: Lithos means rock)

✦Lithosphere is the outermost layer of the crust which represents the land mass of the planet.

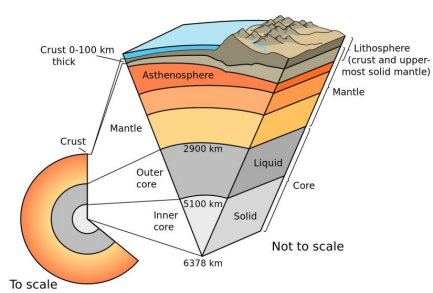
✦consists of rocks, soil, sediments and minerals.

✦geological structures or landforms like high mountains, plateau, deep valleys and sea beds make the surface of lithosphere uneven

✦geological processes like weathering & erosion, volcanic eruptions, biogeochemical cycles take place at the lithosphere

✦Different terrestrial ecosystems like forests, grasslands, deserts etc. are found on the lithosphere

Cross Section of Lithosphere



Earths structure can be stratified into
-Outer Crust
-Middle Mantle
-Inner Core

4 Major Layers of Atmosphere

rate of change of temperature with the altitude is called lapse rate

✦Tropo-sphere	upper layer is called tropopause
✦Strat-osphere	Ozone layerin this region absorbs harmful UV radiation, particularly UV-B radiation because of which life is possible on earth's surface
✦Meso sphere	Density of air is very low and important chemical species found in this region are O2 + and NO+
✦Therm osphere	ionic oxygen atoms and other ions in this layer absorb short wave solar radiation which increases the temperature in this layer

Hydrosphere: (Greek: Hydor means water)

✦represents water masses in solid (ice cover, glaciers etc.), liquid (water bodies) and gaseous (water vapors) phases

✦covers almost three-fourth of the total surface area of the earth.

✦is an integral part of the water cycle and plays a crucial role in maintaining normal climatic, meteorological, physical, chemical and biological functions on the planet

✦Oceans and seas are the largest sink of carbon in the environment.

Total water
97% Salt Water + 3% Fresh Water

Total Fresh water = 2% Ice Caps + 1% Surface and Ground Water

Biosphere:(Greek: Bios means life)

✦self-regulating overlapping region of atmosphere, lithosphere and hydrosphere

✦the environment where life sustainably exists, nourished and flourished by the healthy interaction between biotic and abiotic components	✦biotic (autotrophs and hetero-trophs)
	✦abiotic components (air, water, sunlight, soil, rock etc.)