
Chapter 5

Major Domains of the Earth

❖ Components of Environment

- Lithosphere, atmosphere and hydrosphere are the three domains of the earth.

❖ Lithosphere

- It is the solid portion of the earth's surface, comprising of rocks on the crust and layers of soil.
- The two main divisions of the earth's surface are large landmasses called continents and huge water bodies called ocean basins.
The elevation of land is measured from sea level which is the same everywhere and is taken as zero.

❖ Continents

- There are seven continents that are separated by oceans.
- Asia
 - Asia is the largest continent covering one-third portion of the total land area of the earth.
 - It is separated from Europe by Ural Mountains in the west.
 - The combined land mass of Asia and Europe is called Eurasia.
- Europe
 - Europe is much smaller than Asia and lies to its west.
 - It is surrounded by water bodies from three sides.
- Africa
 - Africa is the second largest continent that lies mostly in the Northern Hemisphere.
 - The Equator, Tropic of Cancer and Tropic of Capricorn pass through Africa.
 - The world's largest hot desert, the Sahara Desert and the longest river, Nile are located in Africa.
- North America
 - North America is the third largest continent.
 - It is linked to South America with a very narrow strip of land called the Isthmus of Panama.
 - It is located completely in the Western and Northern hemisphere and is surrounded by three oceans.
- South America

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- South America is situated mostly in the Southern Hemisphere.
 - It has the world's largest range of mountains named Andes, running from north to south.
 - The world's largest river Amazon is in South America.
 - Australia
 - Australia is called an island continent because it is surrounded by oceans on all sides.
 - It is the smallest continent.
 - Antarctica
 - Antarctica is a huge continent that lies completely in the Southern Hemisphere in the South Polar Region. The South Pole is located almost at its centre.
 - Human settlement is not possible here as it is covered with ice throughout the year.
 - Many countries have their research stations here. India's research stations are Maitri and Dakshin Gangotri.
 - ❖ Hydrosphere
 - Hydrosphere comprises water in the form of water vapour in the atmosphere, ice in the glacier, underground water, oceans, seas, rivers, ponds and lakes.
 - More than 71% of the earth is covered with water and 29% with land.
 - 97.2% of water is salty and unfit for human use as it is found in oceans and seas. 2.77% of it is stored in ice sheets and ground water and 0.03% of it is fresh water.
 - ❖ Oceans
 - Oceans are huge water bodies covering a large part of the earth and are linked to each other.
 - Ocean water moves in the form of tides, waves and ocean currents.
 - Pacific Ocean
 - It is the largest ocean and covers one-third of the earth's surface.
 - Asia, Australia, North and South America surround it.
 - The deepest part of the earth, the Mariana Trench, lies under this ocean.
 - Atlantic Ocean
 - Atlantic Ocean is the second largest ocean.
 - North and South America are located to its west and Europe and Africa are to its east.
 - Its irregular and indented coastline is ideal for natural harbours and ports and beneficial for trade and commerce.

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- Indian Ocean
 - Indian Ocean is triangular in shape with Asia to its north, Africa to its west and Australia to its east.
 - It is the only ocean named after a country, i.e. India.
 - Arctic Ocean
 - Arctic Circle is located within the Arctic Circle and surrounds the North Pole.
 - It is connected to the Pacific Ocean by a stretch of shallow water known as Bering Strait.

❖ Atmosphere

- The layer of gases surrounding the earth is known as the atmosphere.
- Its density and temperature vary with height which extends up to 1,600 km.
- The atmosphere provides air to breathe and protects living beings from harmful rays of the sun.
- The five layers of the atmosphere are the troposphere, the stratosphere, the mesosphere, the thermosphere and the exosphere.
- The layers are divided on the basis of their composition, temperature and other properties.
- Nitrogen constitutes 78%, oxygen 21% and carbon dioxide and other gases form 1% of the atmosphere.
- Differences in atmospheric density cause change in air pressure and winds.

❖ Biosphere

- The narrow zone of contact between land, water and air, where life exists, is called biosphere.
- The organisms in biosphere are divided into plant kingdom and animal kingdom.
- Land, water and air affect each other in the biosphere.
- Cutting of trees leads to soil erosion.
- Emissions from industries pollute air and increase the level of carbon dioxide which causes increase in temperature or global warming.