

BIOSPHERE AS AN ECOSYSTEM

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Composition of Earth

- Earth Has 4 main systems that interact:



Earth's systems

Atmosphere

Air/gases

Hydrosphere

water

Biosphere

life

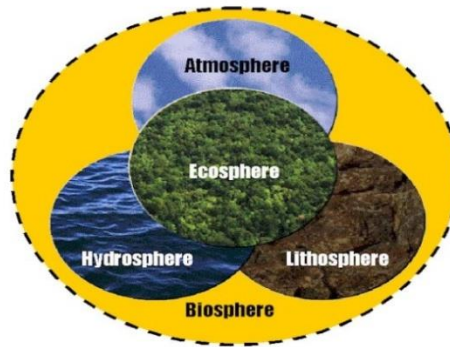
Geosphere

land/rock

Use of the term Biosphere

The term "**biosphere**" was coined by geologist Eduard Suess in 1875, which he defined as:

The place on Earth's surface where life dwells.



BIOSPHERE

- Biosphere is the **global ecological system integrating** all living beings and their relationships.
- Usually defined as the **thin outer layer** of the earth capable of **supporting life**.

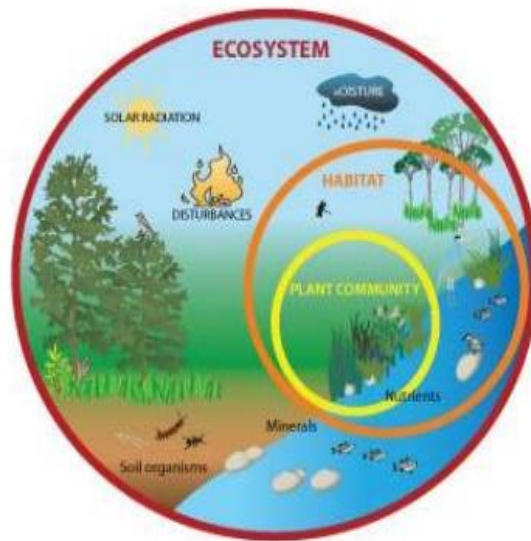


Factors effect on Biosphere

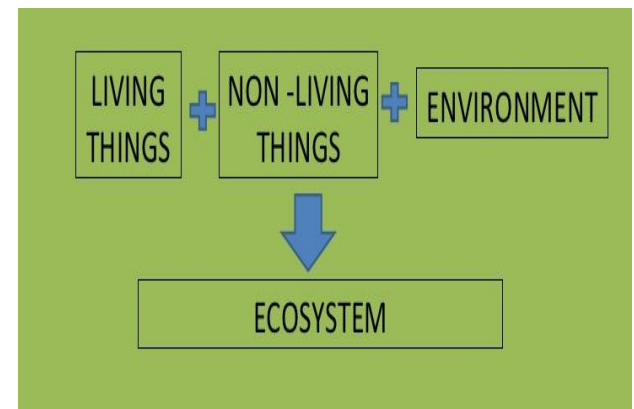
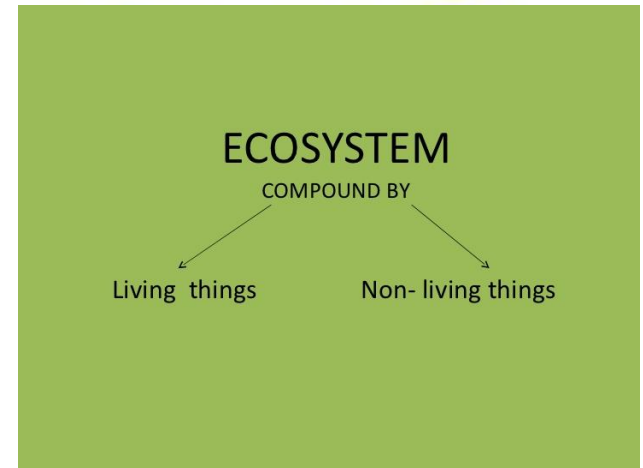
- ❏ Distance between the earth and the sun.
- ❏ Seasons and seasonal climate changes are direct results of the tilt of the Earth towards or away from the Sun. Summer months allow half of the planet to warm while the other half cools. Six months later, the temperatures shift in the opposite direction.
- ❏ **Chemical erosion** is a great example of a landscape changing one molecule at a time.
- ❏ **Oxidation** and **reduction** reactions change the composition of rocks and organic materials. There is also **biological erosion**. Tiny organisms, such as bacteria and fungi, are constantly working to break down organic and inorganic materials.

Ecosystem: Collection of **all** the **organisms** that live in a particular place, together with their **non-living environment**.

Ecosystem = an Ecological system;
= A community and its physical environment
treated together as a functional
system.



An Ecosystem



Living Things

- Animals



- Plants

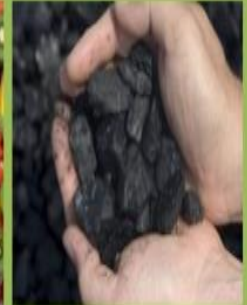


- Microorganisms



Non-living things

- Sun ray's
- Water
- Soil
- Copper
- Rocks
- Wood
- Fruit
- Coal
- Bones



Habitats

- An habitat is the place where a living thing makes its home. Here it has everything it needs.
- An habitat provides: Food, shelter, water and living space.



Groups within Ecosystems

- A **Population**: Is all the living things of the same kind that live in the same place at the same time.



- A **Community**: Is all the populations that live together in the same place.



Mooses, Bears, Beavers, Cats, Squirrels, Owls, Rabbits, Doves, Coniferous trees, Nightingale

Relationship between the Biosphere and an Ecosystem

- The Biosphere refers to all living organisms on Earth and is often called the global Ecosystem.
- An Ecosystem includes all of the biotic and abiotic factors that are found in a given environment whereas the Biosphere includes all the places on earth where life is found and includes all of the different Biomes.
- Portion of each Ecosystem in the Biosphere includes the flow of energy, nutrients, water, gases and the concentrations of organic and inorganic substances in the environment.

- The Biosphere supports between 3 and 30 million species of plants, animals, fungi, single-celled prokaryotes such as bacteria, and single-celled eukaryotes such as protozoans. Of this total, only about 1.4 million species have been named so far, and fewer than 1 percent have been studied for their ecological relationships and their role in ecosystems. Hence the relationships of organisms to their environments and the roles that species play in the biosphere are only beginning to be understood.