

STUDY OF ECOLOGY



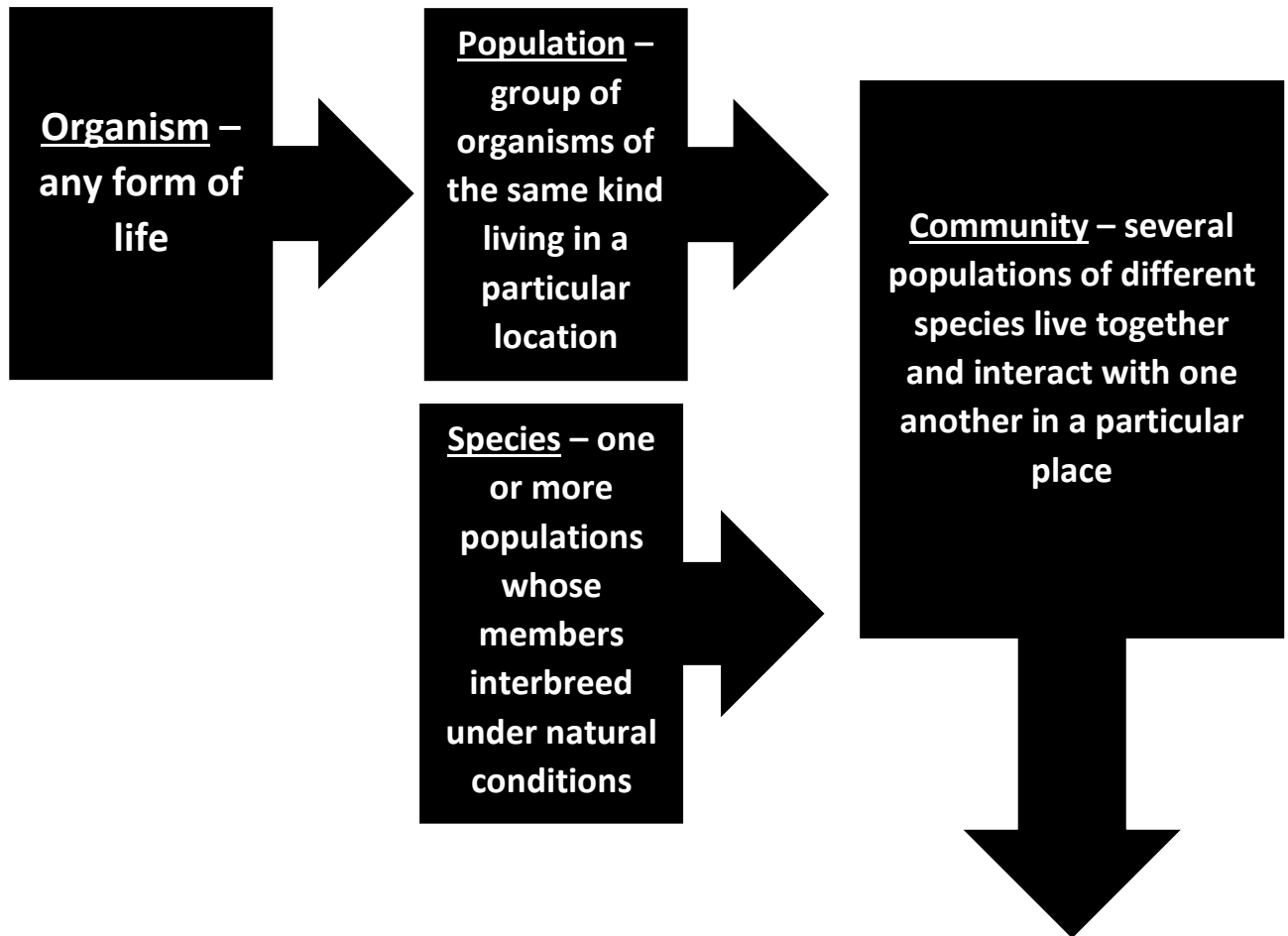
Ecology

Greek words: “oikos” (place to live) + “logos” (study of)

Ecology is the study of the interactions between organisms and their living (biotic) and nonliving (abiotic) environment.

Scientists usually carry out this study by examining different ecosystems (forests, grasslands, deserts, oceans, lakes, etc., or any set of organisms interacting with one another and with their nonliving environment).

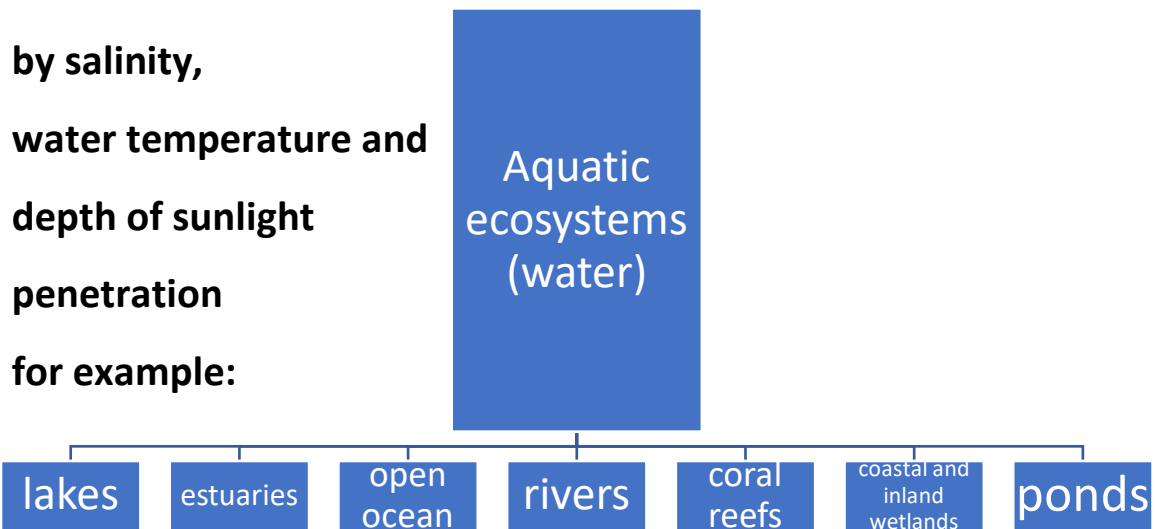
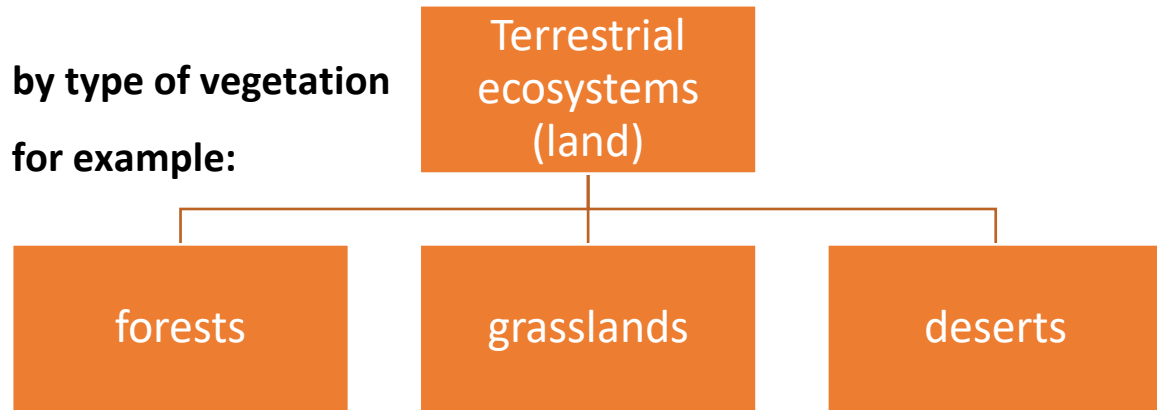
FROM AN ORGANISM TO THE ECOSPHERE



Ecosystem – dynamic network of biological, chemical, and physical interactions that sustain a community

ALL THE EARTH'S ECOSYSTEMS TOGETHER MAKE UP THE ECOSPHERE

TYPES OF ECOSYSTEMS



ECOSYSTEM COMPONENTS

Abiotic components = nonliving components, including physical (*sunlight and shade, temperature range, wind, precipitation level, etc.*) and **chemical factors** (*level of water and air in soil, salinity of water, etc.*)

Biotic components = living components, i.e. major types of organisms (*producers, consumers, decomposers*)

MAJOR TYPES OF ORGANISMS

Producers (self-feeders): organisms that can manufacture the organic components they use as sources of energy and nutrients

(green plants → photosynthesis)

Consumers (other-feeders): organisms that get the nutrients and energy they require by feeding either directly or indirectly on producers

Herbivores (plant eaters): deer, rabbit

Carnivores (flesh eaters): hawks, sharks

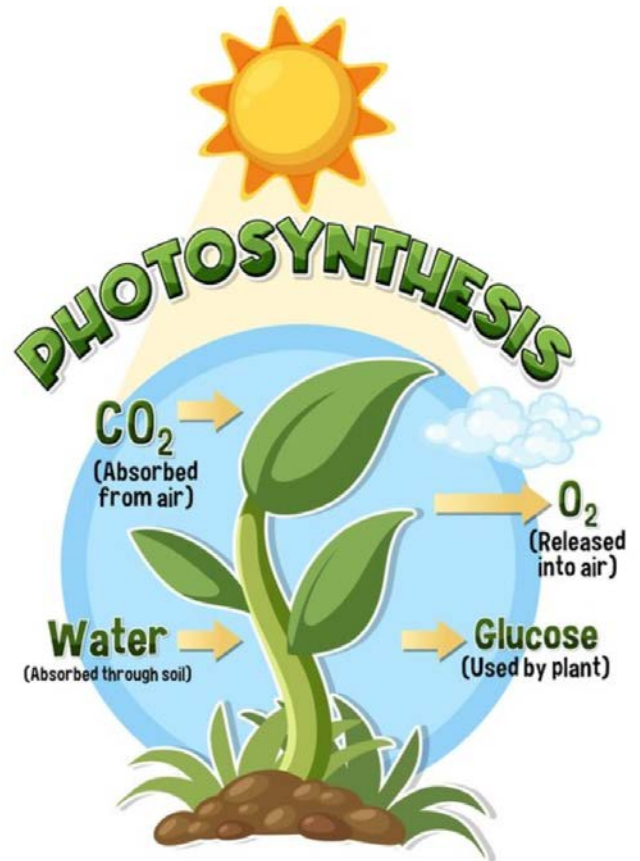
Omnivores (everything eaters): pigs, foxes, humans

Decomposers (feed on dead things): organisms that break apart dead organisms into simpler inorganic materials, making nutrients available to primary producers

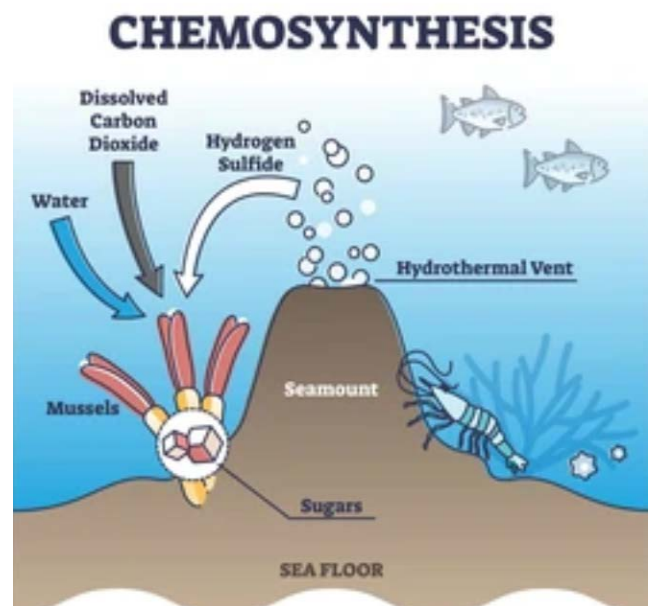
(bacteria, fungi)

PHOTOSYNTHESIS AND CHEMOSYNTHESIS

Photosynthesis is the process by which plants, algae, and some bacteria use sunlight to make their own food. They take in carbon dioxide (from the air) and water (from the soil) and, with the help of sunlight, turn these into glucose (a type of sugar) and oxygen. The glucose is used by the plant for energy and growth, while the oxygen is released into the air.



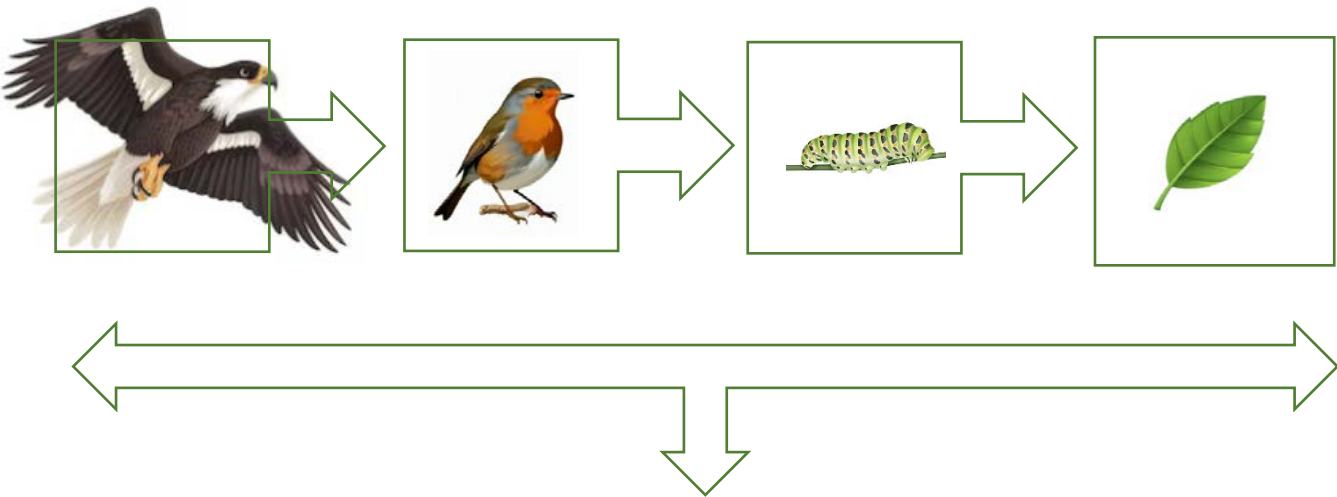
Chemosynthesis is a process used by some organisms to produce food without sunlight. Instead of using sunlight, these organisms use chemicals like hydrogen sulfide or methane to create energy. This usually happens in environments where sunlight can't reach, like deep-sea vents or underground caves. The organisms take in the chemicals and combine them with carbon dioxide to make glucose, just like in photosynthesis.



FOOD CHAINS AND FOOD WEBS

All organisms, dead or alive, are potential sources of food for other organisms.

FOOD CHAIN – a series of organisms, each eating or decomposing the preceding one.



FOOD WEB – a complex network of many interconnected food chains.