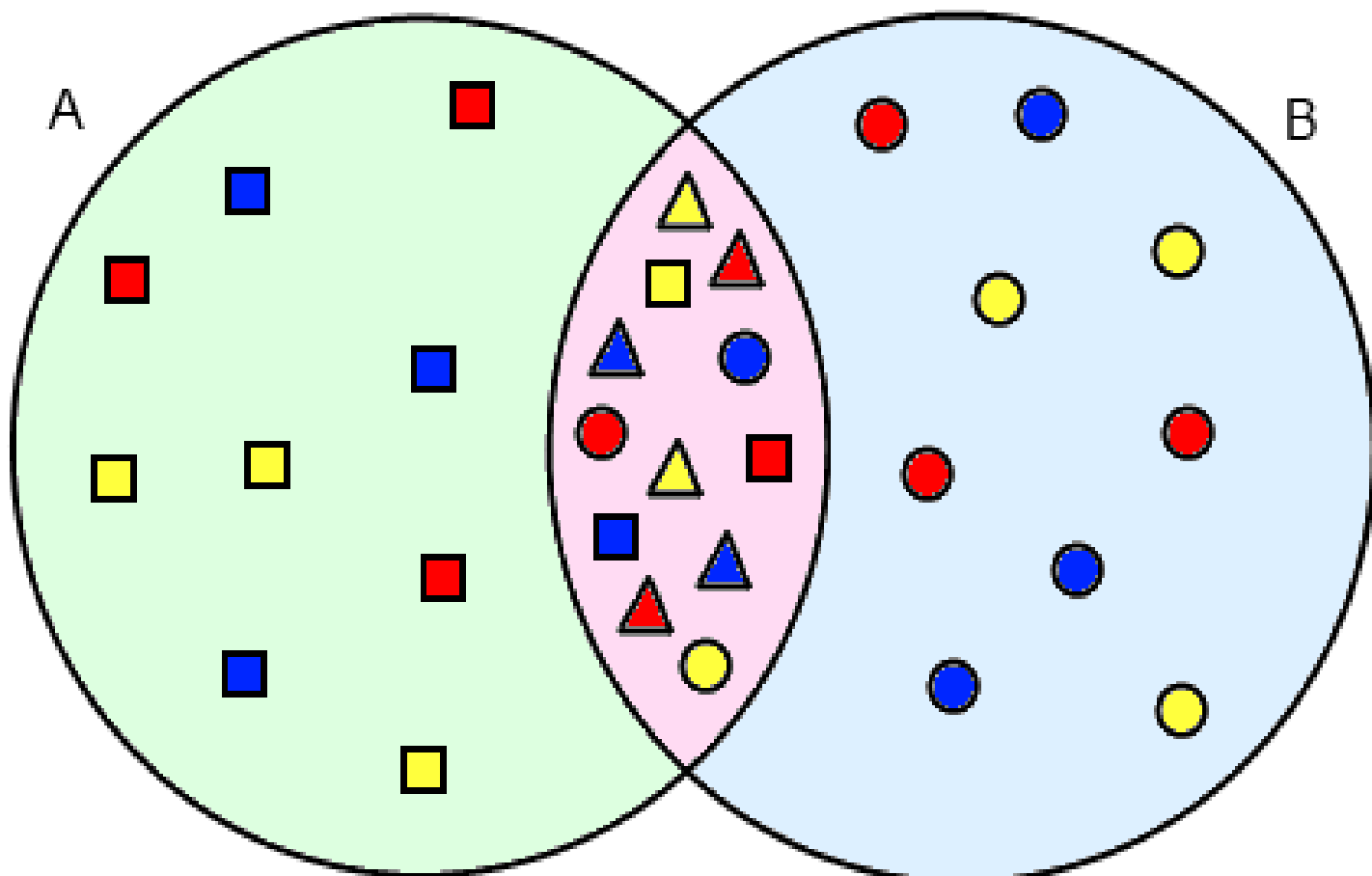


EDGE EFFECT AND EDGE SPECIES

EDGE EFFECT refers to the changes in population or community structures that occur at the boundary of two habitats (ecotone).

Sometimes, the number of species and population density of some of the species in ecotone is much greater than either community.

The organisms which occur primarily or most abundantly in this zone are known as **EDGE SPECIES**.



3 species

9 species

3 species

CLIMATE AND WEATHER

Weather



can change within
a few minutes or hours!



Climate



takes very long time
to change!





The difference between weather and climate is a measure of time.

Weather is what conditions of the atmosphere are over a short period of time, and climate is how the atmosphere "behaves" over relatively long periods of time.

Microclimate: climatic conditions prevailing at a local scale

CLIMATE

The climate of a location is affected by its latitude, terrain, and altitude, as well as nearby water bodies and their currents.

Temperature and Rainfall are the two most important factors which determine the climate of an area.

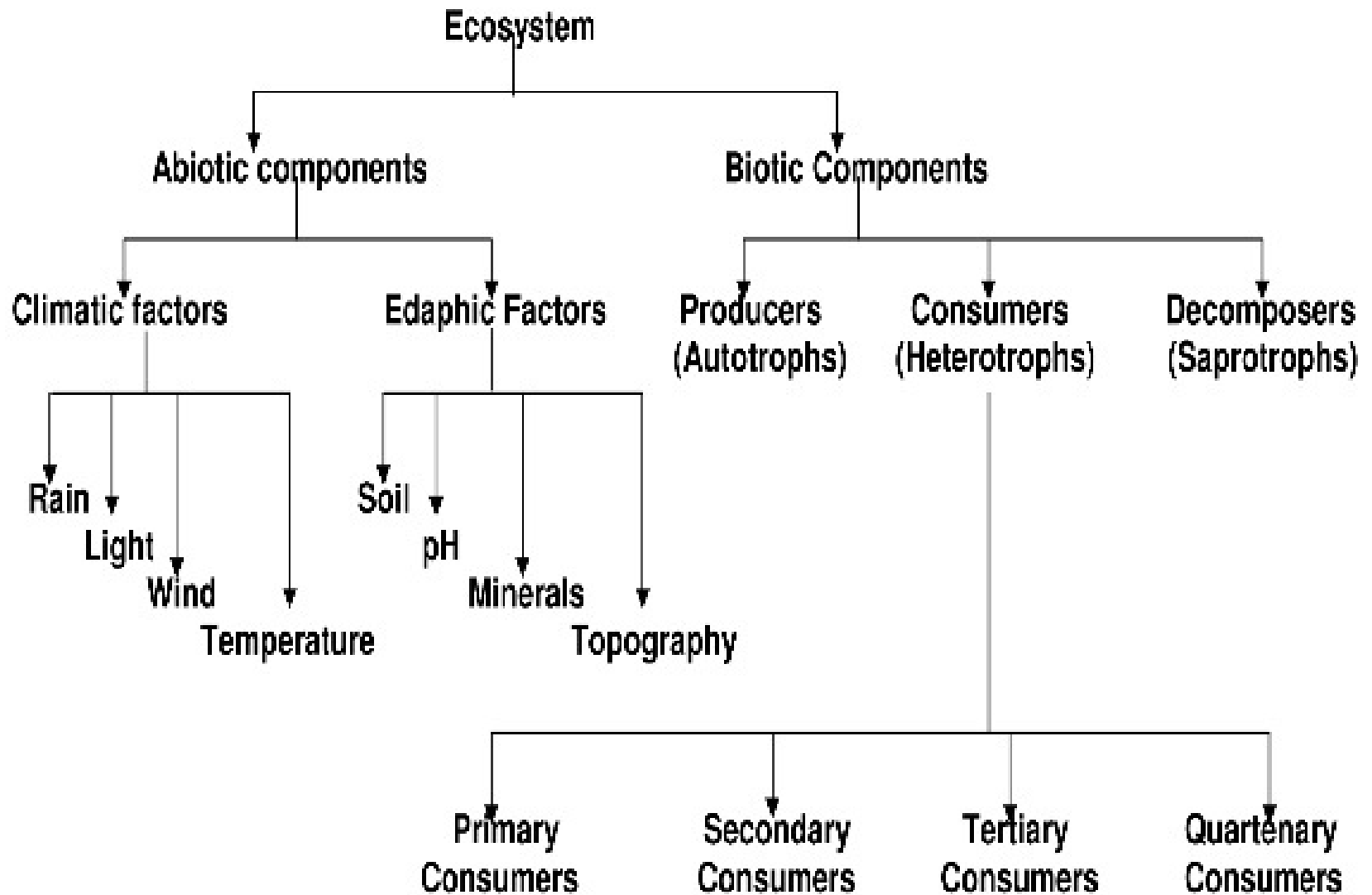
A region's climate generated by the climate system has five components namely the Hydrosphere, Atmosphere, Biosphere, Lithosphere and Cryosphere

CLIMATIC ZONES

On the basis of variation in mean temperature along the latitude, the main climatic regions are:

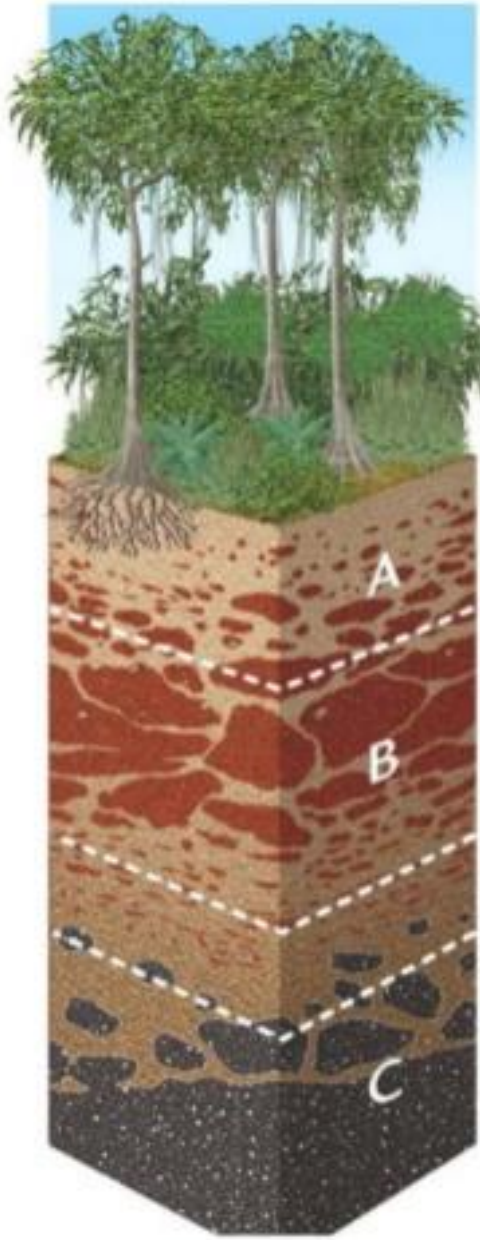
- 1). Tropical (0 - 23.5 latitude)
- 2). Subtropical (23.5-40)
- 3). Temperate (40-60)
- 4). Arctic and Antarctic (60-80)

Components of Ecosystem



Edaphic factors

- The factors which relate to structure and composition of soil are called edaphic factors.
- Soil is a very complex medium. A good fertile soil contains mineral matter (40%), organic matter (10%), water (15%) and air (25%).
- Mineral matter in the soil occurs in the form of particles. Soil can be studied under Physical and chemical properties.



Tropical climate

LATERITE

Thin or absent
humus

Thick masses of insoluble
iron and aluminum oxides;
occasional quartz

Thin leached zone

Mafic igneous
bedrock

- Abiotic components include both physical and chemical elements.
- They vary from region to region and from one ecosystem to another.
- They act as limiting factors and will vary according to ecosystems.
- Most important abiotic component is Sunlight

Photosynthetically Active Radiation : The spectral range of solar radiation from 400 to 700 nm in which photosynthesis can take place.

Only less than 50% of the incident solar radiation is PAR and plants capture only 2-10% of the PAR. This small amount of energy sustains the whole living world.

Ecosystem



Biotic



- a). Producers
- b). Consumers
- c). Decomposers



Abiotic



- a). Physical components
- b). Chemical components

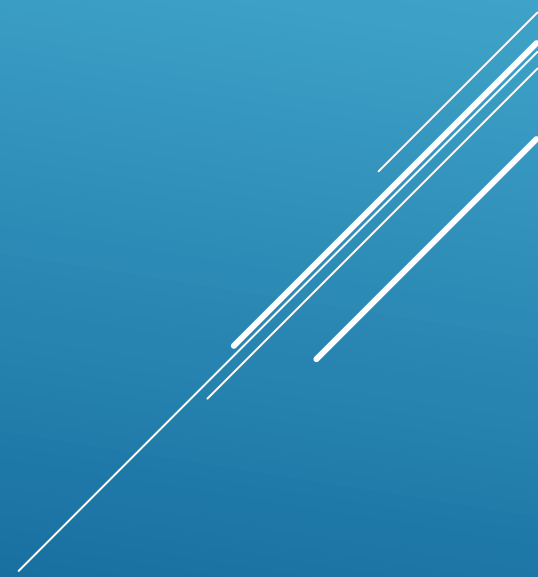
Producers (auto-trophs)



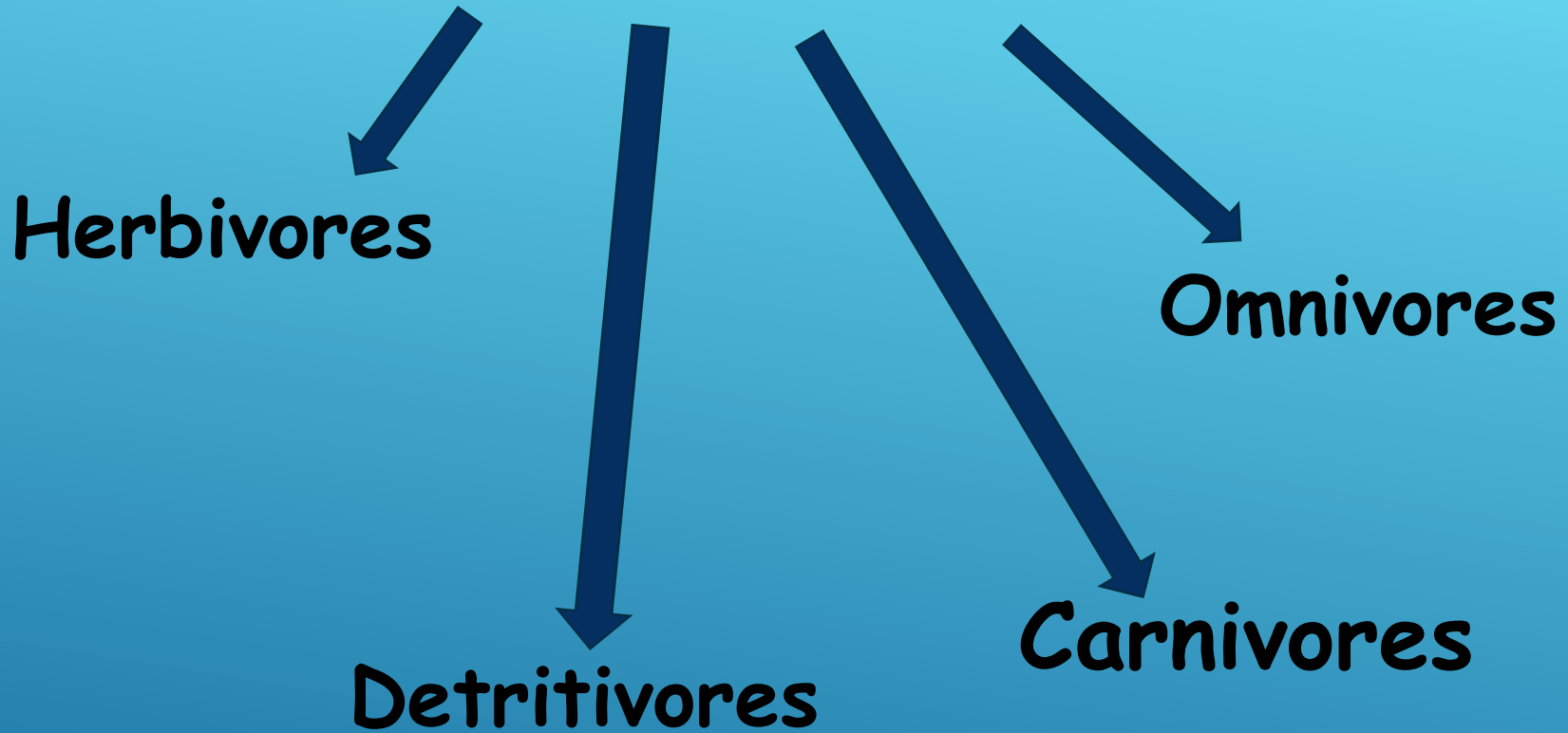
Photo-autotrophs
Eg. plants



Chemo-autotrophs
Eg. sulphur bacteria



Consumers



which feed on dead organisms
e.g., earth worm, crab, ants

Decomposers:

These are micro-organisms which break down organic matter into inorganic compounds and in this process they derive their nutrition.

They play a very important role in converting the essential nutrients from unavailable organic form to free inorganic form that is available for use by plants

e.g., bacteria, fungi

ABIOTIC COMPONENTS



PHYSICAL COMPONENTS

Eg. sunlight, solar intensity, rainfall, temperature, wind speed and direction, water availability, soil texture etc.



CHEMICAL COMPONENTS

include major essential nutrients like C, N, P, K, H₂, O₂, S etc. and micronutrients like Fe, Mo, Zn, Cu etc., salts and toxic substances like pesticides.

FEEDING RELATIONSHIPS

There are 3 main types of feeding relationships

1. Producer - Consumer
2. Predator - Prey
3. Parasite - Host

Producer Consumer Relationship

Producers: All autotrophs (plants)

They trap energy from the sun and occupy bottom of the food chain

Consumers- All heterotrophs

They ingest food containing the sun's energy

Herbivores, Carnivores, Omnivores,
Decomposer

Consumers are again divided as:

Primary consumers: Eat plants i.e are
Herbivores

Secondary, tertiary ... consumers: Prey on
other animals that is are Carnivores

They could be Predators, Scavengers (feeding
on carrions and dead meat) or Omnivores



Consumers can also be **Decomposers** that breakdown the complex compounds of dead and decaying plants and animals into simpler molecules that can be absorbed



POPULATION INTERACTION

Refers to the effect one organism has on another.



When a certain group of species lives in a certain ecosystem, they have effects on one another. This phenomenon affecting nearby living and nonliving beings are called Population Interaction