- Adaptation is any attribute of the organism (Morphological, Physiological, Behavioral) that enables organism to survive and reproduce in its habitat. Adaptedness is the state of being adapted: the degree to which an organism is able to live and reproduce in a given set of habitats
- **Example**: Kangaroo rat in North American Deserts: in absence of water, has ability to meet its requirement through internal fat oxidation and has ability to concentrate its urine.

Morphological Adaptations:	• Desert plants have thick cuticle on their leaf surface and stomata arranged in deep pits to minimize water loss through transpiration. • Some desert plants like Opunita have no leaves and photosynthetic function is taken over by flattened stems. • Mammals from colder climates have shorter ears and limbs to minimize heat loss. This is called Allen's Rule.
Physiological Adaptations	E.g. altitude sickness: Our body compensate low Oxygen availability by increasing red blood cell production, decreasing the binding affin ity of hemoglobin and by increasing breathing rate.
Biochemical Adaptation:	Many fish and invertebrates live at great depths in the ocean, where pressure could be >100 times than the normal atmospheric pressure that we experience.
Behavioural Adaptations	E.g .Lizard they bask in the sun when body temperature drops, but moves to shade when ambient temperature starts increasing.

MAJOR BIOTIC COMPONENTS

PRODUCER	CONSUMER	DECOMPOSER
• Producers are organisms that create food from inorganic matter. • **Example**: Plants, lichens and algae, which convert water, sunlight and carbon dioxide into carbohydrates.	• Consumers have to feed on producers or other consumers to survive. • If they feed on the producers, the plants, they are called **primary consumers**, and if the animals eat other animals which in turn eat the plants (or their produce) they are called **secondary consumers.** • The consumers that feed on herbivores are **carnivores**, or more correctly **primary carnivores** (though secondary consumers). Those animals that depend on the primary carnivores for food are labelled **secondary carnivores**. • **Example:** Deer, Bear, Human beings, etc.	• An organism that primarily feeds on dead organisms or the waste from living organisms. • **Detritivores:** Some organisms perform a similar function as decomposers, and are sometimes called **detritivores**. • The difference lies in the way decomposers and detritivores break down organic material. Detritivores must digest organic material within their bodies in order to break it down and gain nutrients from it. • Decomposers do not need to digest organic material internally in order to break it down. • **Scavengers**: Scavengers are the first to arrive at a dead organism's remains. It includes lions, jackals, wolves, raccoons, and opossums. • **Example**: Bacteria, fungi