Biotic Interactions:

The biological community of an area or ecosystem is a complex network of interactions. The interaction that occurs among different individuals of the same species is called intraspecific interaction while the interaction among individuals of different species in a community is termed as interspecific interaction.

Species A	Species B	Name of Interaction
+	+	*Mutualism*
–	–	*Competition*
+	–	*Predation*
+	–	*Parasitism*
+	*0*	*Commensalism*
–	*0*	*Amensalism*

Amensalism:

- The bread mould fungi Pencillium produce penicillin an antibiotic substance which inhibits the growth of a variety of bacteria.
- When cattle trample on grass, the grass and insects are crushed.
- Algal blooms can cause the death of a variety of fish species. The algae, on the other hand, do not benefit from the loss of those animals.
- A large tree inhibits growth of smaller plant nearby.

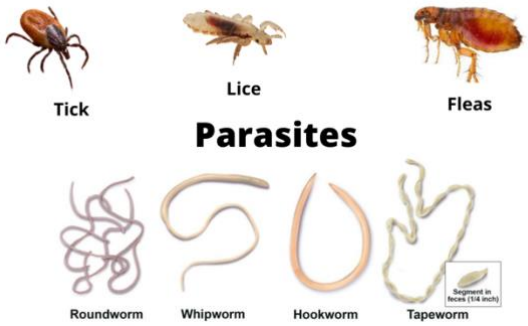
Predation:

- In this type of interaction predator captures, kills and eats an animal of another species called the prey.
- Herbivores in a broad ecological context, not very different from predators.
- Alien invasive species start growing in the absence of natural predators.
- Predators also help in maintaining species diversity in a community, by reducing the intensity of competition among competing prey species. If a predator is too efficient and overexploits its prey, then the prey might become extinct and following it, the predator will also become extinct for lack of food.
- This is the reason why predators in nature are 'prudent'.
- Prey species have evolved various defenses to lessen the impact of predation.
    - Adaptations: insects and frogs are cryptically-coloured (camouflaged) to avoid being detected.
    - Monarch butterfly is highly distasteful to its predator.

- Plants have evolved morphological and chemical defences against herbivores. For example – Thorns

Parasitism:

- Parasite are usually a small size organism living in or on another living species called the host from which the parasite gets its nourishment and often shelter.
- Many parasites have evolved to be host-specific. Host and the parasite tend to co-evolve; that is, if the host evolves special mechanisms for rejecting or resisting the parasite, the parasite has to evolve mechanisms to counteract and neutralize them.
- The life cycles of many parasites are often complex, involving one or two intermediate hosts or vectors to facilitate parasitisation of its primary host.



- Parasites that feed on the external surface of the host organism are called ectoparasites. Endoparasites are those that live inside the host
  - Many organisms like animal, bacteria and viruses are parasites of plants and animals. Plants like dodder plant (Cuscuta) and mistletoe (Loranthus) are parasites that live on flowering plants.
  - Tap worm, round worm, malarial parasite, many bacteria, fungi, and viruses are common parasites of humans.
  - Brood parasitism in birds is a fascinating example of parasitism in which the parasitic bird lays its eggs in the nest of its host and lets the host incubate them.

Competition:

- This is an interaction between two populations in which both species are harmed to some extent.
- Competition occurs when two populations or species, both need a vital resource that is in short supply.
- The vital resource could be food, water, shelter, nesting site, mates or space. Such competition can be: (i) interspecific competition or (ii) intraspecific
  - resources need not be limiting for competition to occur.

Commensalism:

- When cattle graze on grass, insects that have been hiding inside the grass are exposed to the outside surface, where they are eaten by birds. Birds are helped in this case, whereas cattle are unaffected.
- Sucker fish, remora often attaches to a shark.
- The sea anemone aids in the protection of clown fish from predators.
- Epiphytes live on the surface of other plants trees for support and for obtaining sunlight.

Mutualism:

- Plants need the help of animals for pollinating their flowers. Plants offer rewards or fees in the form of pollen and nectar for pollinators and juicy and nutritious fruits for seed dispersers.
- Lichens represent an intimate mutualistic relationship between a fungus and photosynthesizing algae.
- Mycorrhizae are associations between fungi and the roots of higher plants. The fungi help the plant in the absorption of essential nutrients from the soil while the plant in turn provides the fungi with energy-yielding carbohydrates.