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((Invertebrates))

2 stage

Lecture two

**Biological Association among
Organisms**

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Biological Association among Organisms :

An Association as interaction between different species :

There are five types of interaction :

1 – Competition and Predation

2 - Commensalism

3 – Mutualism

4 – Amensalism

5 - Parasitism

6 – Adaptation

1 - Competition and Predation :

One organism hunts another animal for nutrition requirement (Predation) such as , Snake eats frog (snake (predator , Frog is a prey) .

Eagle eat snake , Falcon eat pigeon , Owl eat mice rats .

Predator animals : Lion , Wolfe , Tiger

2 - Commensalism :

It is an association between two living organisms Interaction one organism benefit while other (neither



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harm nor benefited) , such as an organism attached to another , such as Remora (Crustacian) with Shark .
birds with buffalo .

sciencenotes.org

Symbiosis

Symbiosis is an ecological relationship between organisms of different species.



Mutualism

both species benefit

humans and gut
bacteria



Commensalism

*one benefits, other
is unaffected*

cattle egret and
cattle



Parasitism

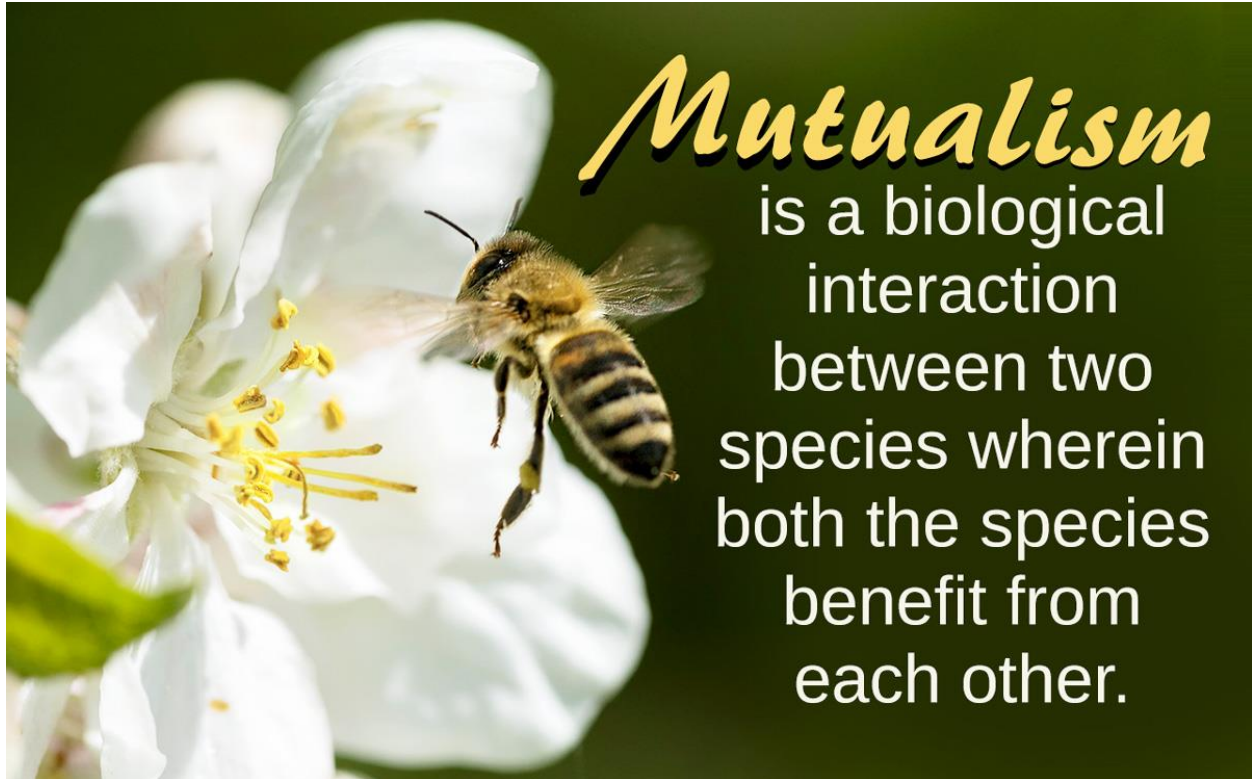
*one benefits, other
is harmed*

ticks and dogs



3 - Mutualism :

Both species involved in interaction are benefited from another / Also this relation called Symbiosis , example : Algae and fungus in lichen . , Bacteria in rumen of ruminants , Flower and insects .



Symbiosis :

It is close association between organisms in which both benefited from another . example Alge and Fungus in Lichen . Bacteria in rumen of ruminant , Flowers and insects .

Algae feed fungus by chlorophyll pigment , Fungus on other hand help algae protection and aid in water absorption (No one Injured) , both benefited .



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4 - Amensalism : This type of association between organisms different species in which is inhibited or destroyed while other is unaffected . Two types :



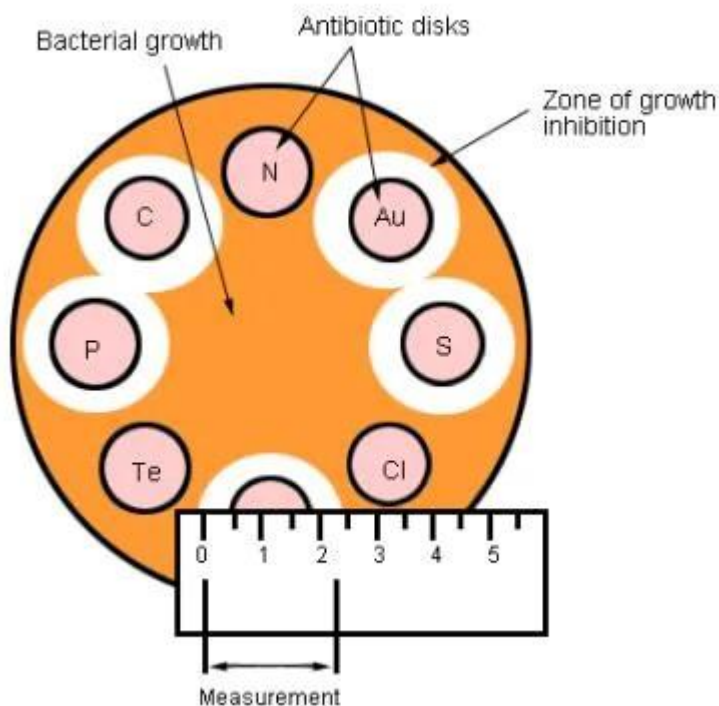
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A - Competition : Larger or stronger exclude smaller , weaker from living space .

B - Antibiosis : (Antibiotics) in which organism is unaffected but the other is damaged or killed by a chemical secretion of another organisms . Example *Penicillium* against bacteria . *Actinomyces* against bacteria .

Sensitivity test : to know the best antibiotic killed bacteria .

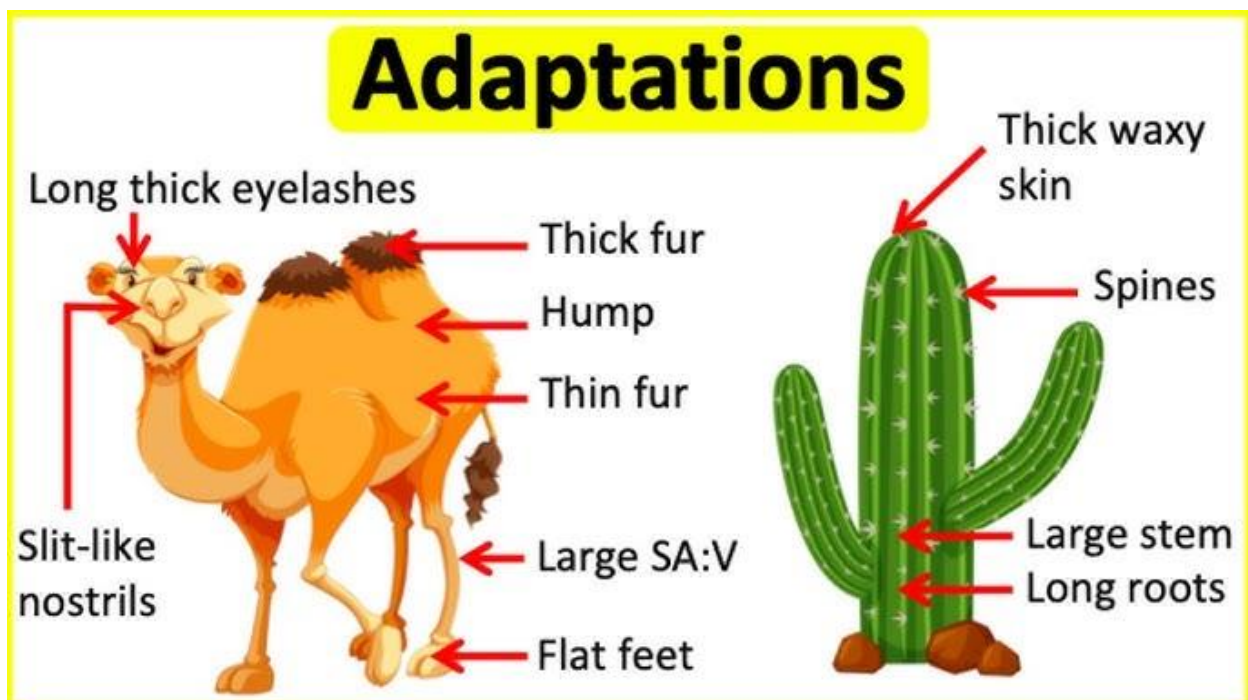


5 - Parasitism :

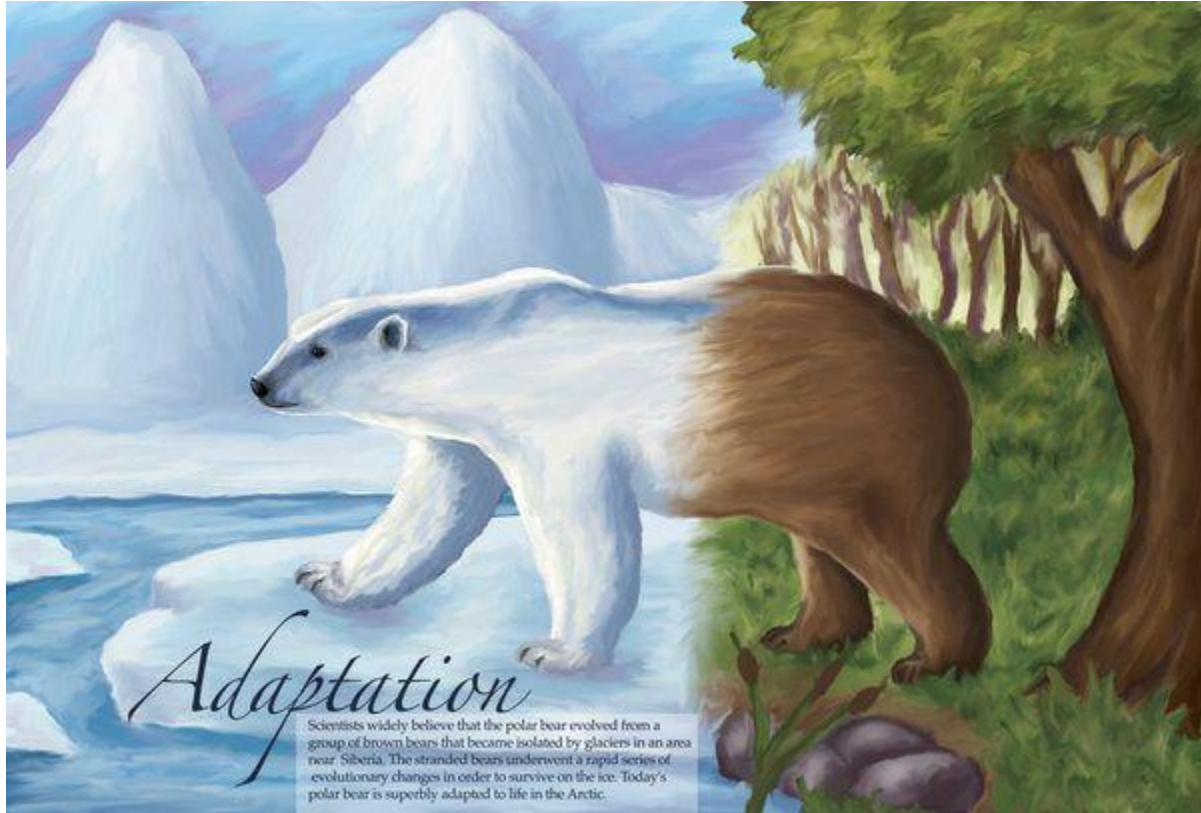
It is a relationship or an association between two organisms , different species , one parasite benefited and cause harm to their host as in human and tape worm , Ticks on cow .

6 - Adaptation // Biological adaptation

Defined as changes in behavior , structure(Anatomy) , or features , Evolved to enable organisms to survive in the environment .



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Quiz :

- 1 - In which relation can we put the Father (Dad) with his Son or daughter or mother with her embryo ?
- 2 – Is there an association between Human and Plant ?
- 2 - Define Clay ?