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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 (Crustacean) 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

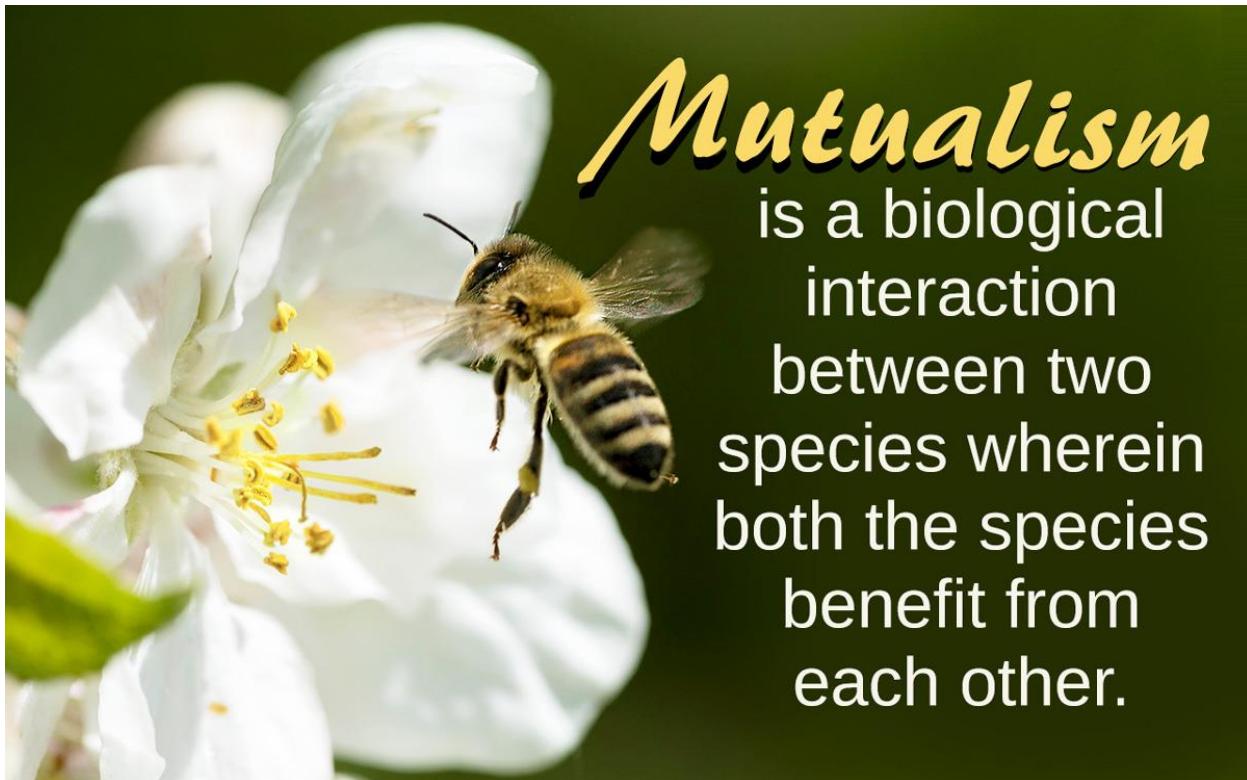
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3 - Mutualism :

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 .

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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 chlorophil pigment , Fungus on other hand help algae protection and aid in water absorption (No one Injured) , both benefited .

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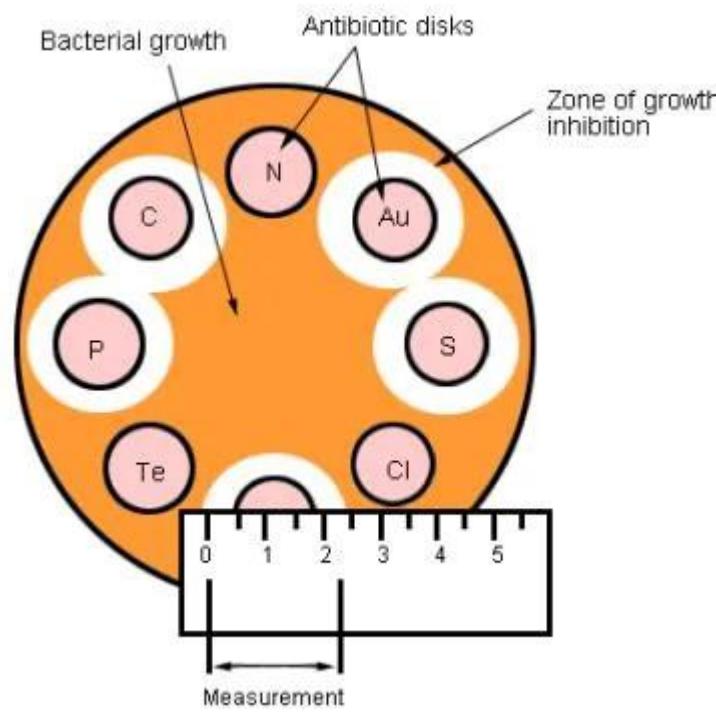
4 - Amensalism : This type of association between organisms different species in which is inhibited or destroyed while other is unaffected . Two types :

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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 .



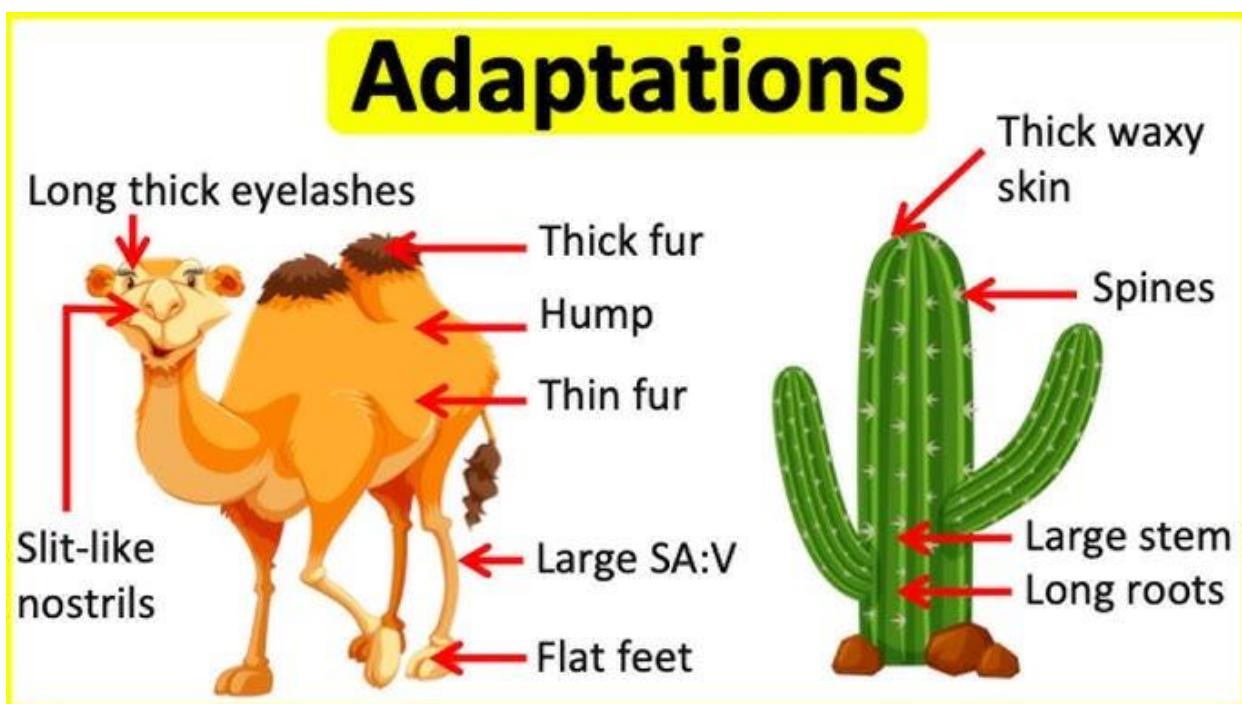
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5 - Parasitism :

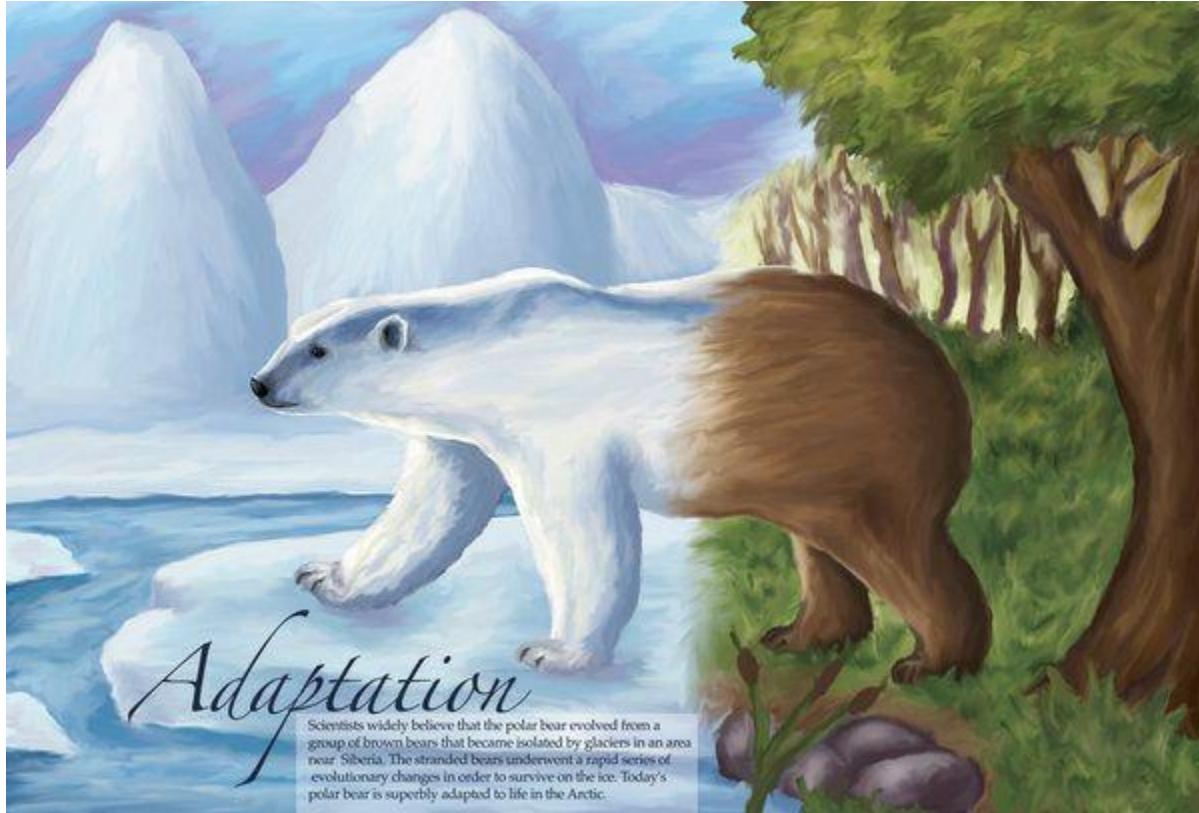
It is a relationship or an association between two organisms , different species , one parasite benefited and cause harm to their host as in human and tape worm , Ticks on cow .

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 ?**