

Interrelationships of organisms within the ecosystem

Intraspecific relationships are between members of the **SAME** species. These are the strongest, as the same species need the same things. These relationships can be **cooperative**, e.g. hunting in packs, courtship defending the group etc, or **aggressive**, e.g. fighting for mates and territory, pecking order etc. Intraspecific relationships usually affect individuals.

Interspecific relationships are between members of **DIFFERENT** species. These occur when two species live together in direct contact. Interspecific relationships tend to effect the population.

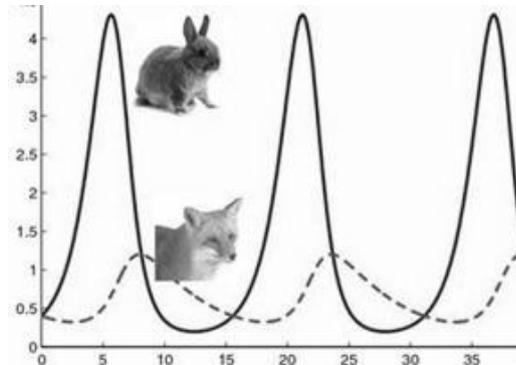
Types of interspecific relationships:

Exploitation: one member in the relationship **benefits** while the other is **harmed**.

There are TWO main types of exploitations:

- **Predation:** this is where one animal (predator) hunts and kills the other (prey) e.g. hawk eating mice.
- **Scavengers** are dependent on activity of predators as they feed on the left-over food.

Predator/ prey graph: If the prey (rabbit) population increases, the predator (foxes) numbers will respond to the increased food supply by increasing as well. This means the predator numbers will eventually reduce the food supply to the point where it can no longer sustain the predator population and the predator population will decrease ... and so on.



- **Parasitism:** this is where one animal (parasite) feeds on or in a living host. e.g. Tapeworms living in the gut of a cat, nits on humans. Parasites are usually smaller than their host and don't kill the host.

Competition: This occurs when TWO or more species compete for the same resources; food, territory etc. **Both organisms are harmed.**

Mutualism: **Both members** in the relationship **benefit**. e.g. lichens are made up of two organisms; a fungus which absorbs water and minerals and an algae which uses the water and minerals for photosynthesis to produce food which feeds the fungus. Or cleaner fish that eat the parasites off a larger fish.

Commensalism: One species **benefits** while the other is **unaffected**. e.g. epiphytes living on the trunk of a tree. Roots do not absorb nutrients from the tree or fish gaining protection from living amongst coral.

Antibiosis: This is a relationship between two or more organisms where at least one of them is harmed by the production of a substance produced by the other. e.g. *Penicillium* fungus secreting chemicals which inhibit the growth of bacteria.

Identify the interspecific relationships described below

Print and then fold the page over on the dotted line to hide answers, fill in the “Relationship” boxes and then open up the sheet to mark your work.

Description of relationship	Relationship	Answer
Frogs feeding on small insects		Exploitation / Predation
Blood-sucking lice living among the feathers of a bird.		Exploitation / Parasitism
Tuis feeding on nectar from Kowhai flowers		Mutualism
Ants feeding on a dead cricket		Scavenging
The alga and fungus which make up a lichen		Mutualism
Tiny wasps laying eggs on a caterpillar		Exploitation / Parasitism
Blue-green algae ‘bloom’ producing compounds which kill fish		Antibiosis
A small crab living between the shell of a mussel, stealing its food but causing no damage to the crab		Commensalism
Legumes e.g. pea plants grow small nodules on their roots that are home to nitrogen-fixing bacteria called <i>Rhizobium</i>		Mutualism