Symbiosis: association between two or more organisms of different species

Mutualism:
both benefit

☺ ☺

ex:
- Clownfish + anemones

- remora fish + shark

- boxer crab + anemones

Commensalism:
1 benefits other one isn't affected + unharmed

☺ 😐

ex:
- imperial shrimp + sea cucumber

- barnacles + whales or turtles

- isopods + fish

- Goby + sea urchin

Parasitism:
host is hurt
one species benefits at the expense of the other

☺ ☹

2 kinds:
① ectoparasitism - external
② endoparasitism - internal
   ex: viruses, bacteria + roundworms

- lamprey (suck blood)
- pearfish + sea cucumber

Predation:

😁 😵

parasitism leads
to
predation
the one
dies

Benefits of Symbiosis:

1. <u>Defense</u> - organism select a host with better defense then self
    <u>ex</u> - clownfish + anemone
        - carrier crab + sea urchin

2. Cleaning: larger fish go to cleaning stations + get cleaned - smaller species eat
    <u>ex</u> - cleaning shrimp
        - remoray

3. Phonesis (transportation): when one organism uses another for transportation
    <u>ex</u> - swimmer crab
        - urchin

4. obtain food: organisms use each other for the benefit of obtaing food more easily
    <u>ex</u> - dancing goby shrimp

5. Camouflage; organisms provided with coverage + return they are transported + benefit from more food locations
    <u>ex</u> - carrier crabs
        - hermit crabs