

Patterns of Evolution

1-**Coevolution**: a continuous adaptation of 2 different species to each other, usually involves a symbiotic relationship

tortoises on Galapagos Islands evolved w/wood cactus
these tortoises have flared shell allowing neck to reach up to eat soft cacti stems

parasites coevolve w/hosts

most successful parasite/host relationship is one where parasite does not fatally harm host

host evolves defenses but parasite evolves too

tapeworm has lost digestive system, has evolved special hooks to hang on inside digest sys

has evolved special outer covering so digestive enzymes of host don't digest parasite

coevolution picture of bird & flower

2-Reproductive isolation

members of same species interbreed w/each other
to produce fertile offspring

if something happens to split population in 2, so there are
2 separate breeding populations that never interact
nor interbreed, we now have reproductive isolation
this can lead to a new species if some other things occur

- a. **behavioral isolation:** the 2 populations capable of
interbreeding develop differences in courtship
rituals or other behaviors which prevents breeding
ex-eastern & western meadowlarks
ranges of 2 overlap, but they have different songs
- b. **geographic isolation:** if barrier arises in territory of
population so that population is divided in 2 and
members cannot cross barrier, they may develop
changes over time which could lead to new species
ex-Abert's & Kaibab squirrels
- c. **temporal isolation:** 2 populations develop different
breeding times
ex-3 species of orchids: each species has flowers that
only last one day and they bloom on different days

as a pattern of evolution, isolation helps to explain
how species can diverge from ancestral
population

3-Adaptive Radiation: multiple branchings of a family tree that come from one source
the many populations we see now radiate out from the original like spokes on a bicycle wheel
one ancestral species can give rise to many species as they spread out to many distinctive environments
ex-Darwin's finches

4- Convergent Evolution: when different species have evolved similar characteristics due to adapting to similar environments
ex-penguins & dolphins, dolphins & fish

5-gradualism: when evolution occurs in steady & constant changes

6-punctuated equilibrium: when change happens relatively fast, usually after rapid environmental change
ex. dinosaurs died out, mammal diversity exploded

Adaptations: a trait that we see in an organism that enhances its survival & reproduction in its environment

ex. -**camouflage**: blending in to environment
insects, polar bear, arctic hare, arctic fox
octopus link

-**warning coloration**: organisms that are brightly colored so they seem to advertise their presence they are usually poisonous
bees, poison arrow dart frogs, blue-ringed octopus

-**mimicry**: organisms that evolve to resemble plants or other organisms and they get a benefit from this resemblance
praying mantis, walking stick
monarch butterfly & viceroy (mimic)