

## SPECIATION

The formation of entirely new species

- **Microevolution:** changes in gene (allele) frequencies and phenotypic traits within populations and species; can result in new species
- **Species:** members of groups or populations that interbreed are reproductively isolated from another group

### REPRODUCTIVE ISOLATION

- PREZYGOTIC
  - Prevention of mating:
    - Ecological isolation: different habitat, niches,
    - Temporal isolation: reproductive cycles (timing of day, seasons)
    - Behavioural isolation: different signals
  - Prevention of fertilization:
    - Mechanical isolation: structural differences in reproductive organs (arthropod, flowers)
    - Gametic isolation: molecular recognition of sperm and egg (water animals)
- POSTZYGOTIC
  - Zygotic Mortality: different species can mate but no embryos develop to maturity,
  - Hybrid Inviability: baby hybrids aren't viable, don't live long
  - Hybrid Infertility: baby hybrid viable but not fertile.

### SPECIATION

- **Allopatric Speciation** : evolution of populations into separate species as a result of geographic isolation.
- **Sympatric Speciation** : evolution of populations within the same geographic area into separate species. (ex. grey tree frogs)