Evolution:

- Goals: understand the concepts underlying, & the relationship among, the following terms:
    - evolution
    - natural selection
    - speciation
    - phylogeny
- Natural selection acts on variation in a population resulting in evolution, which over time can cause new species to form
- the relationships among these species and their origins can be understood through phylogeny
- Biological Fitness: the ability of an indiv. to produce surviving, fertile offspring relative to that ability in other individuals in the population
- Adaptation: a heritable trait that increases an individuals fitness in a particular environment relative to individuals lacking that trait
- Selection: differential reproduction as a result of heritable variation
- Darwin's Four Postulates: Darwin broke the process of evolution by natural selection into 4 criteria or postulates
    - individuals in a population vary in their traits
    - some of these differences are heritable, they're passed on to offspring
    - in each generation, many more offspring are produced than can survive
        - only some will survive long enough to reproduce
        - some will produce more offspring than others
    - individuals w/ certain heritable traits are more likely to survive & reproduce
        - natural selection occurs when individuals w/ certain traits produce more offspring than do individuals w/o these traits
        - the individuals are selected naturally, by the environment
        - the elected traits will increase in frequency in the population from one generation to the next, resulting in evolution
    - evolution is thus a logical outcome of the 4 postulates
    - four steps are condensed into 2 phrases:
        - heritable variation leads to reproductives success
- Selection event: naturally occurring phenomena that shifts the distribution of the phenotypes in a population
- Evolution: a shift in the frequency or the characteristics of a population over time
    - any change in the relative frequency of alleles in a population
- Viewing Populations through the lens of Genetics
    - remember that a population is a group of individuals w/ the same species that interbreed
    - b/c members of populations interbreed, they share a common group of genes called a gene pool