# Warm Up 1/18- 1/19

***Take out your hw to be stamped***

1. Take out your laptop and notes
2. Log into Google Classroom
3. Wait for me to post the 15.1 Quick Quiz

# Agenda

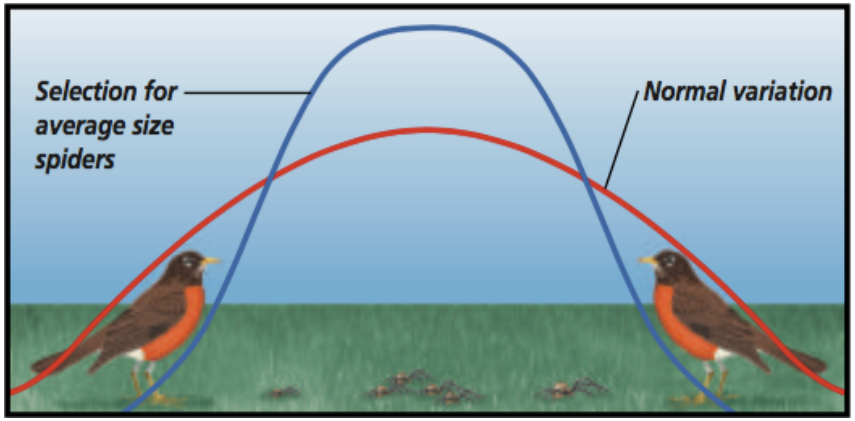
- Warm up- Quick Quiz
- Review hw & “Evidence for Evolution” video
- 15.2 Notes: Mechanisms of Evolution
- Ch 15 Quizlet Live
- Chapter 14/15 Task Cards

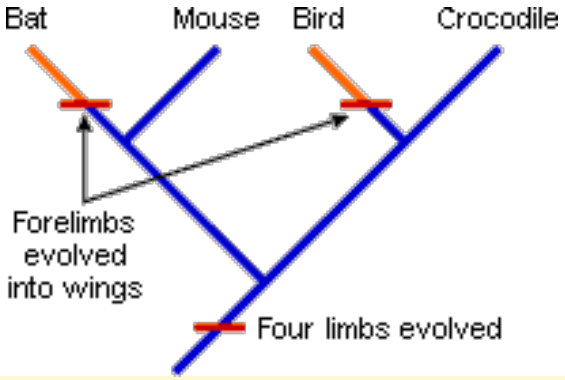
**Homework: Chapter 15 worksheet**

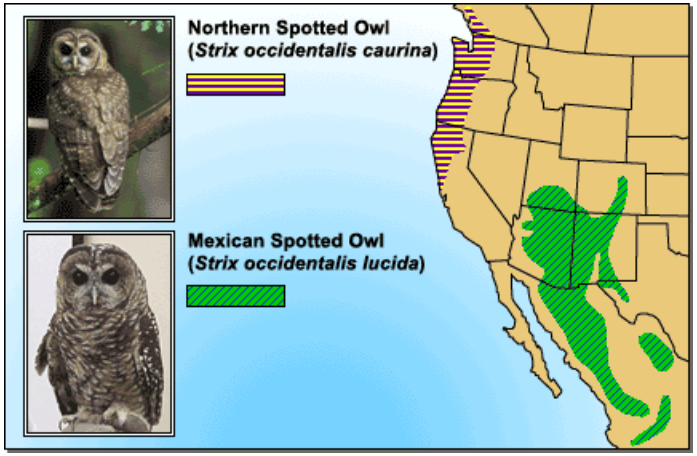
****Ch 14/15 Exam Wed/Thurs****

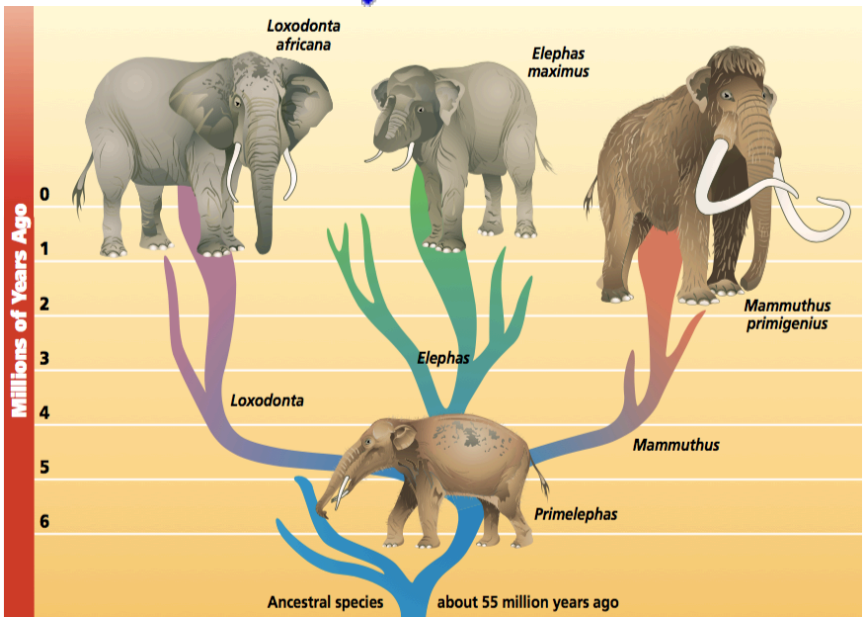
**Quizlet and list of things to study is on website!!!!!!!!!!**

# 15.2 Mechanisms of Evolution



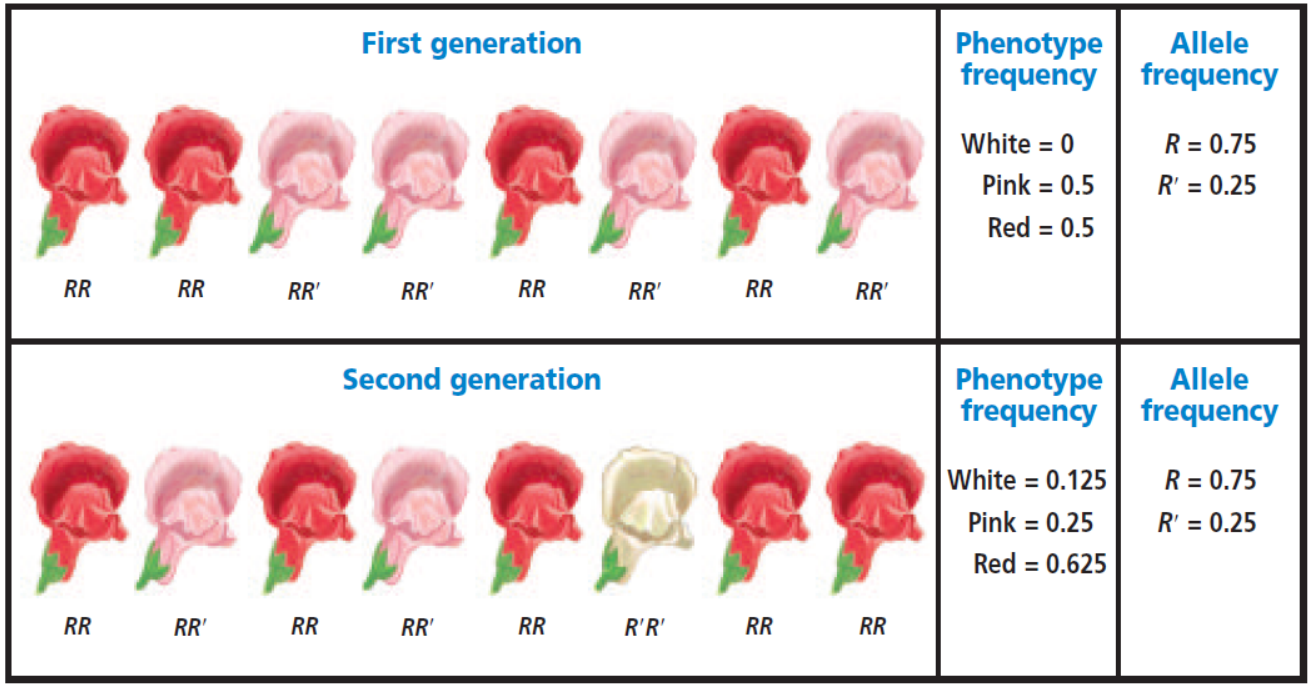



# Can individuals evolve?

- Populations, not individuals, evolve.
- Natural selection acts on a range of phenotypes in a population
- Gene pool: all alleles in a population's genes

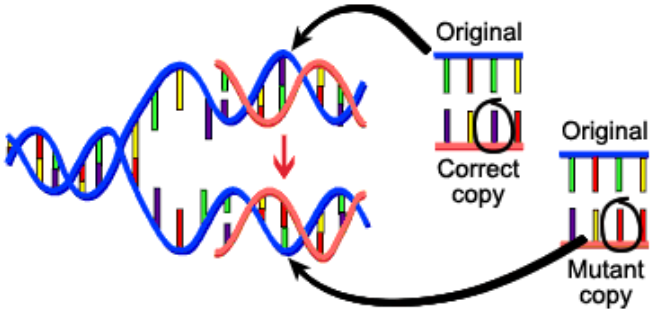
# Allelic Frequency & Genetic Equilibrium

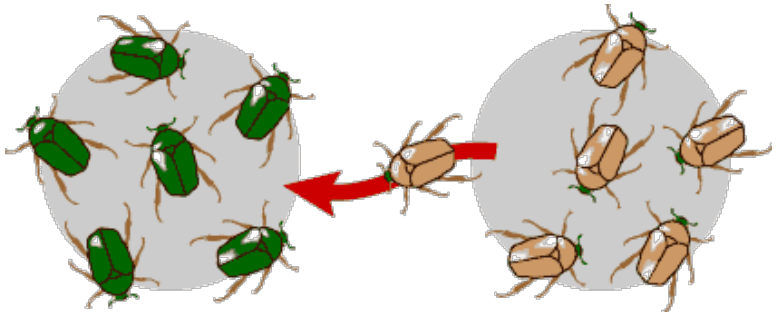
- **Allelic frequency:** % of any specific allele in a gene pool
- **Genetic equilibrium:** frequency of alleles in a population remains the same over generations



# How can the gene pool change?

- **Mutation** that causes useful variation --> becomes part of a population's gene pool
- **Genetic drift:** alteration of allelic frequency by chance events
- **Gene flow:** Movement of individuals in and out of a population



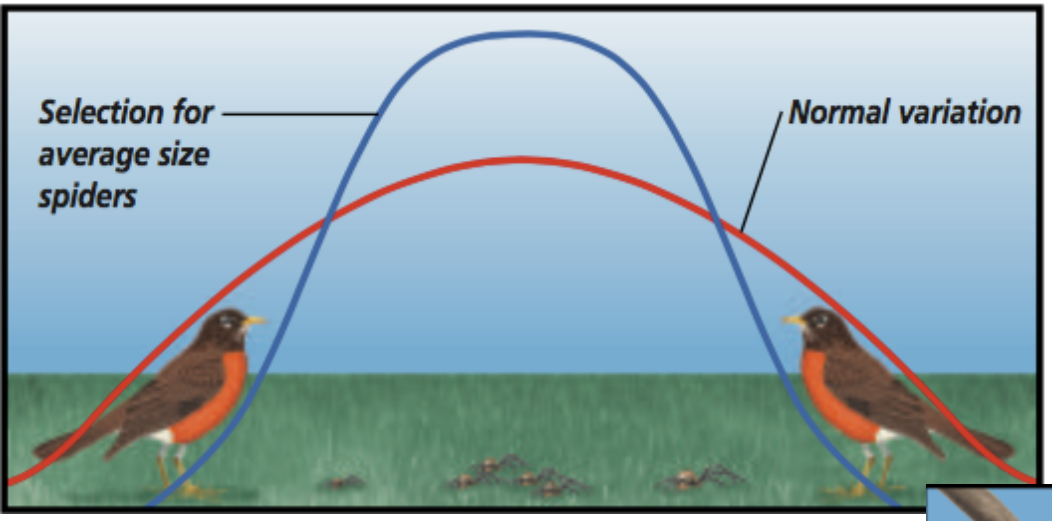
Would these things affect a large population or a small population more?

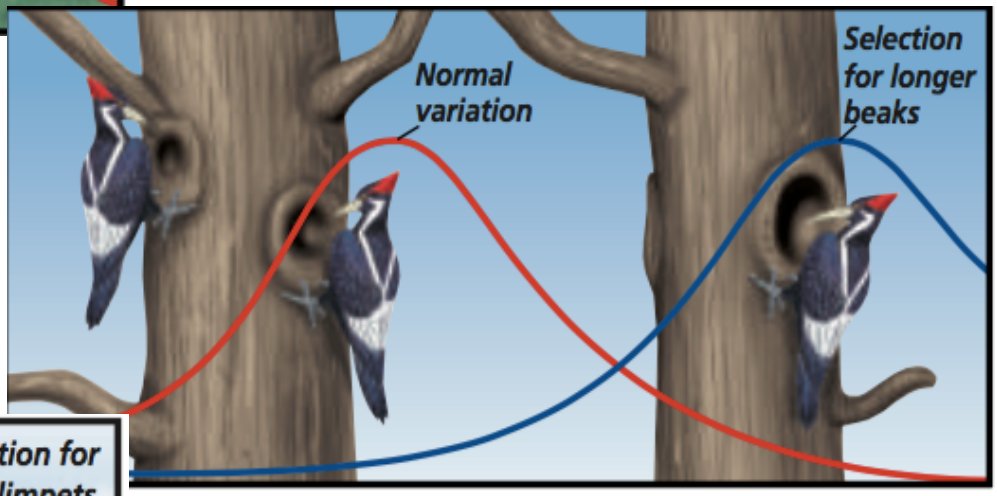
https://youtu.be/W0TM4LQmoZY

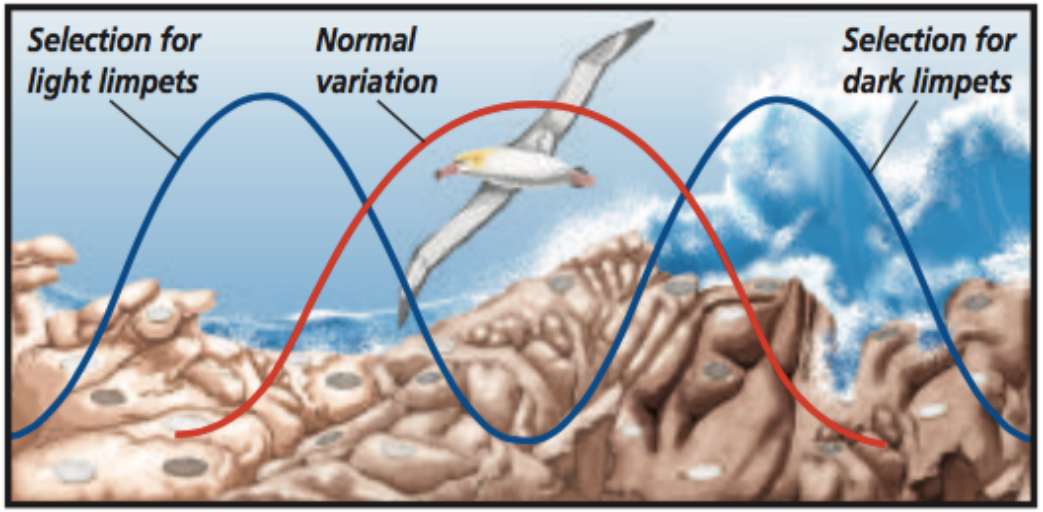
# Natural Selection Acts on Variation

- **Stabilizing selection**- favors average individuals in a population
- **Directional selection**- favors one of the extreme variations of a trait
- **Disruptive selection**- individuals with either extreme of a trait is favored

https://youtu.be/64JUJdZdDQo

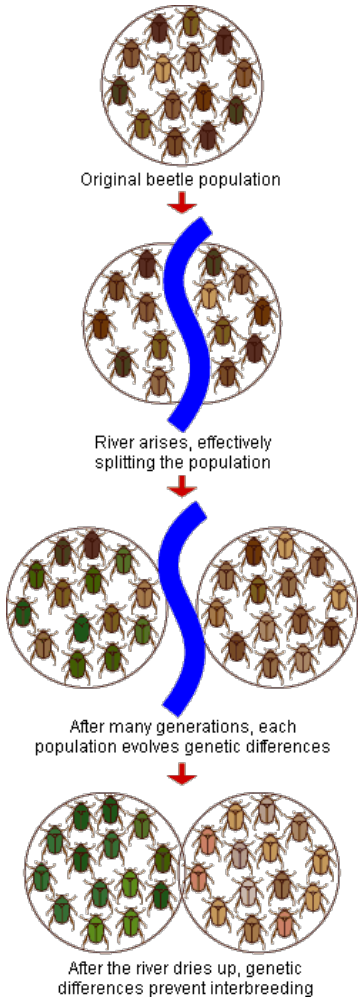

Selection for average size spiders
Normal variation

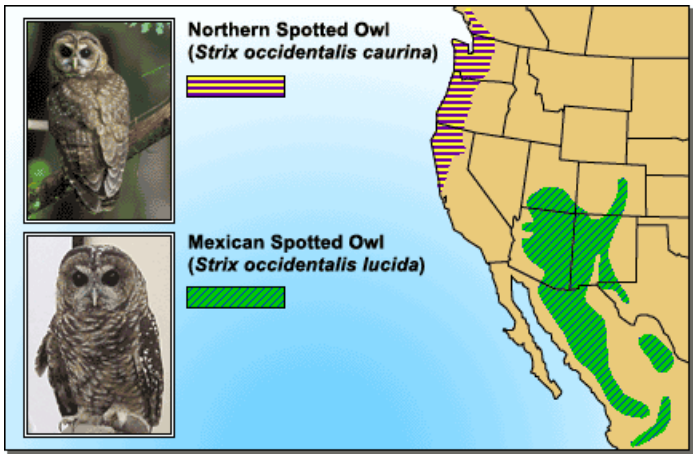

Normal variation
Selection for longer beaks


Selection for light limpets
Normal variation
Selection for dark limpets

# Speciation

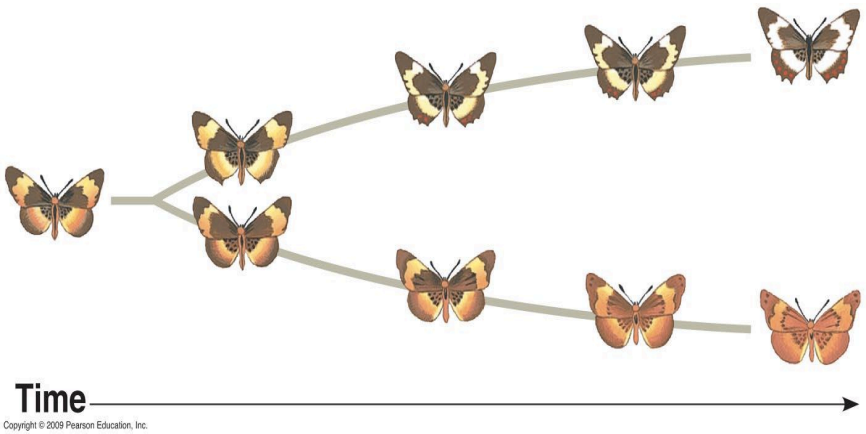
- When members of a population can no longer interbreed (reproductive isolation)
  - Genetics or behavioral
- **Geographic isolation:** physical barrier divides population

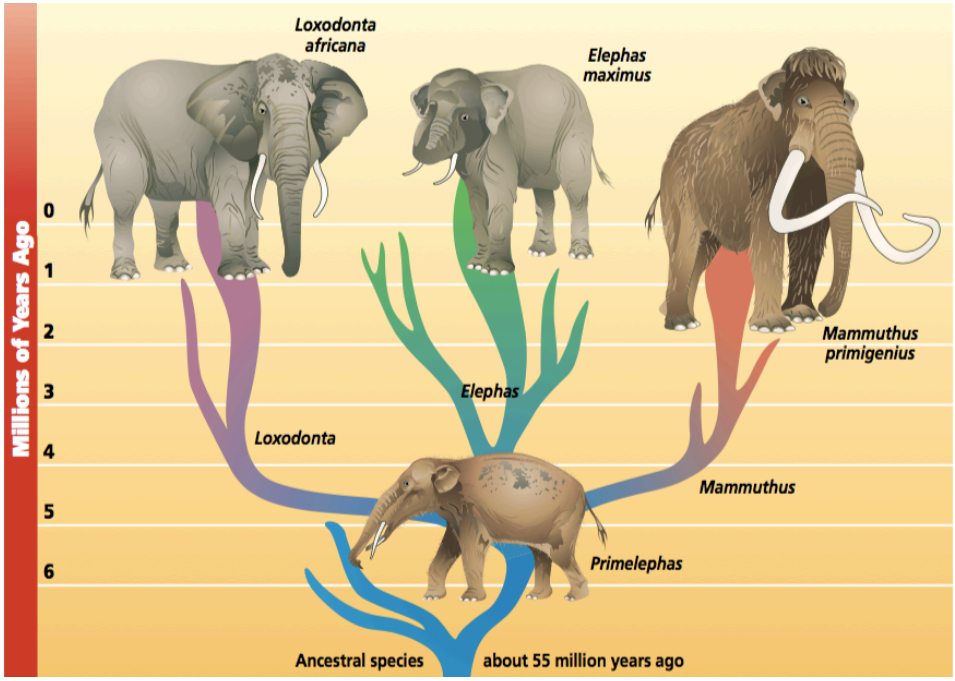


# Speciation Rates

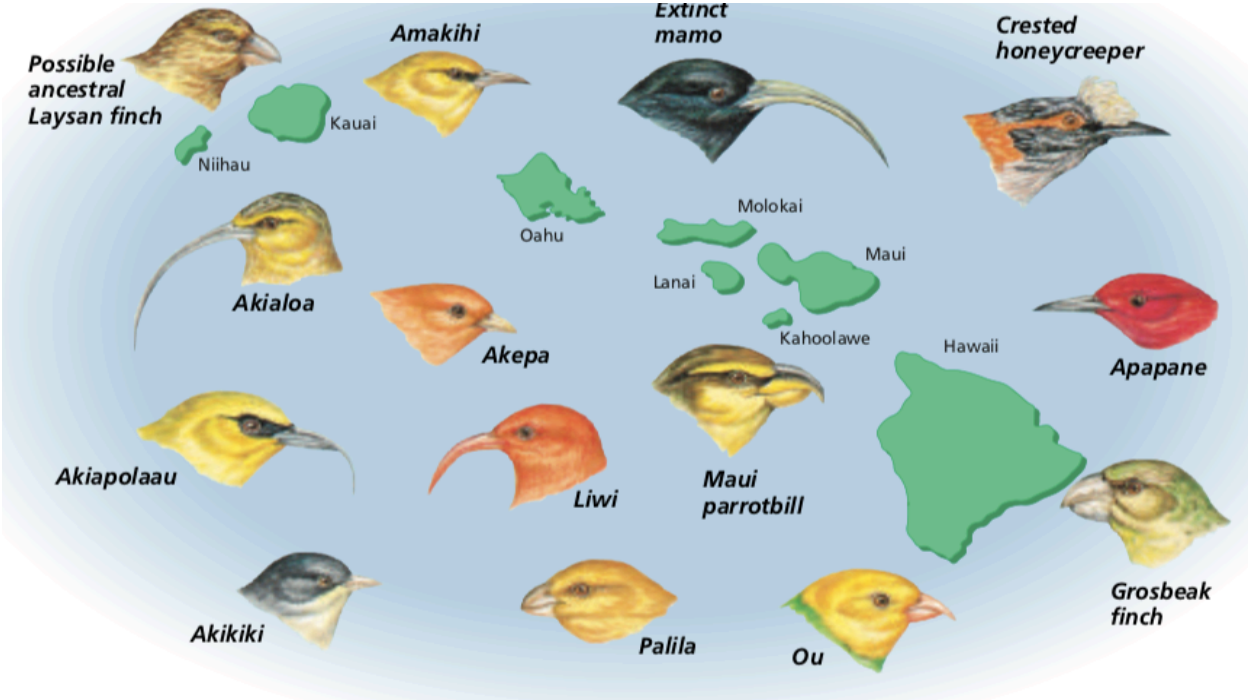
- **Gradualism:** Gradual change of adaptations over long period of time
- **Punctuated equilibrium:** Speciation can occur in quick bursts, with long periods of genetic equilibrium in between



# Patterns of Evolution

- **Divergent evolution**: species that were once similar to ancestral species diverge, eventually resulting in a new species.
  - **EXAMPLE: Adaptive radiation**- ancestral species evolves into an array of species to fit a number of diverse




Example: Hawaiian honeycreepers

# Patterns of Evolution

- **Convergent evolution:** Distantly related organisms evolve similar traits
- Can result in **Analogous structures**- structures similar in function but no common ancestor

Example of analogous structure: