

# Adaptation and Evolution of Populations

## Adaptations and Mutations

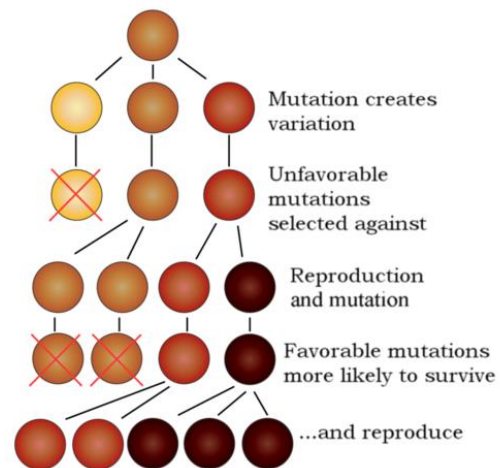
- **Adaptations** are characteristics that help an organism survive in an environment.
  - Adaptations develop when **variations** in a population occur.
- A **mutation** is a random change in the genetic makeup of an individual.
  - Mutations can be harmful, helpful, or have no effect to the organism.
  - Favorable mutations are passed down to future generations through reproduction.

### Study Tip

Imagine a population of mice living in a dark forest. Would the light ones or the dark ones be more likely to not be eaten by predators? Over time, which color of mice would you expect to see more often?

## Evolution

- **Evolution** is when the changes in the genetic makeup of a population of individuals accumulate over time.
  - Evolution causes descendants to be much different than their ancestors.
  - Eventually, it can cause a new species to arise.
- **Natural selection** is the process in which evolution is able to occur.
  - Traits become more or less common in a population depending on how beneficial they are.



*Natural selection driven on both positive and negative variations, and helps organisms adapt and evolve.*

## Concept Check

- How do adaptations and mutations contribute to the process of evolution?
- Describe the process of natural selection.