

I. Three Types of Adaptations

- A. - body parts that will help an organism survive in its habitat
- B. - biochemical reactions of an organism (making venom, secreting slime, being able to keep a constant body temperature); based on body chemistry and metabolism.
- C. - special ways a particular organism behaves to survive; how organism acts.

II. Evolution and the Gene Pool

- A. Evolution is also a change in a population over time.
 - a. The gene pool is the total collection of alleles for a particular gene in a population; all alleles for that gene.
 - b. The frequency of the alleles in a population will determine its frequency (traits.)

B. Genetic Equilibrium

- a. A principle that states allele frequencies tend to remain constant over generations unless acted upon by an outside force (Hardy-Weinberg Equilibrium Equation)
- b. This means that genetic equilibrium will occur in an **undisturbed** population.
- c. Almost all populations experience genetic drift happens in nature
- d. Allows scientists to study changes in a gene pool.

III. Pressure to Adapt

- A. The environment will determine if a trait is advantageous (helpful) or deleterious (harmful).
- B. The environment is constantly changing with an almost infinite number of variables.
- C. If the environment changes, a trait that was once a characteristic an advantageous adaptation anymore.
- D. Natural Selection is the only process that leads to the survival of the fittest.
- E. Natural selection can favor different traits depending on which traits in a population are **avored** at that time.
- F. Biotic Pressures to Adapt
 - a. **Invasive Species**
 - b. **Disease**
 - c. **Competition**
 - d. **Predation**
 - e. **Symbiotic Relationships**
- G. Abiotic Pressures to Adapt
 - a. Climate change (affect migration or hibernation)
 - b. Natural disasters (causes extreme weather, altering habitats)
 - c. Pollution (kills organisms; decreases biodiversity)