

Bio 3

Evolution: Mechanisms

12-4-12

> Evolution

Change in alleles in a given population over time

> An unequal ability to survive/reproduce creates changes in evolution

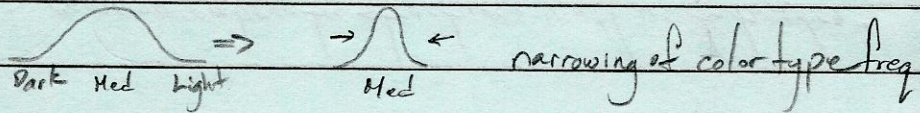
> Evolution can alter variation in a population in three ways:

- Stabilizing selection: favors intermediate phenotype

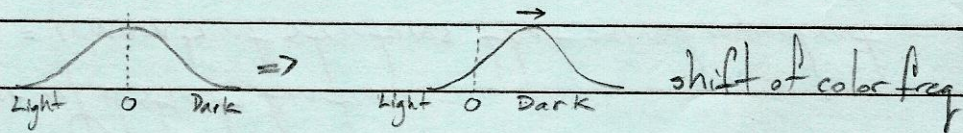
- Directional selection: acts against individuals at one phenotype extreme

- Disruptive selection: favors phenotypes at both extremes

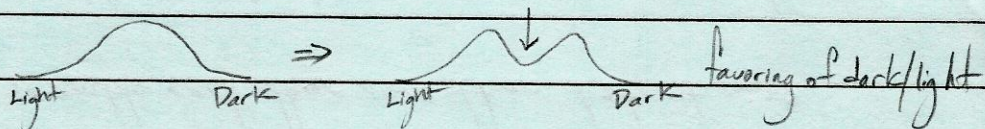
> Stabilizing selection:
(in terms of color breed)



> Directional selection:
(color breed)



> Disruptive selection:



> Natural selection = editing process (not creative mechanism)

- contingent on time + place

- change can happen over short time

> Evolutionary belief

1) Fossil Records

2) Biogeography

3) Comparative Anatomy

4) " Embryology

5) Molecular Biology

> Study of Fossils

- Rarely are organisms fossilized
- changes in sea level, refilling of lakes over time. \Rightarrow rock strata
- found in layers of rocks

> Biogeography: distribution of species and common ancestors

- isolated organisms resemble each other more than distant ones

> Comparative Anatomy: homologous structures (features w/ similar functions) are structurally similar w/ distinct functions

- Vestigial structures = remnants of structures that served important functions in ancestors

> Comparative Embryology: common embryonic structures in all vertebrates - common descent

> Molecular Biology: comparisons of DNA & Amino Acid sequences between different organisms

> Population Genetics & Modern Synthesis: smallest unit that can evolve

- population: similar species living in the same place / time

Bio 3

p.2

Evolution Mechanisms (cont.)

12-4-12

> Darwin makes 3 observations:

- organisms vary in characteristics that are inherited by their offspring
- organisms produce more offspring than environ. can support
- excessive organisms struggle for survival

> Darwin's conclusion: some individuals will produce more offspring

- defined as "fitness"
- environ pressures influence survivability