

## Chapter 11 Evolution of Population Notes

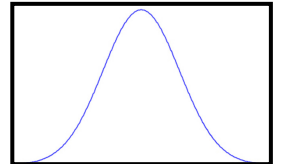
### GENETIC VARIATION 11.1

- Points to remember about evolution!!
  - Occurs in \_\_\_\_\_, not \_\_\_\_\_!
  - Is a change of \_\_\_\_\_ due to \_\_\_\_\_
  - Occurs because \_\_\_\_\_ exists within populations.
- 2 Main Sources of genetic variation:
  1. \_\_\_\_\_
  2. \_\_\_\_\_
- \_\_\_\_\_: the combined \_\_\_\_\_ of all of the individuals in a \_\_\_\_\_
- \_\_\_\_\_—the measure of how \_\_\_\_\_ a certain allele is in a population.

### NATURAL SELECTION IN POPULATIONS 11.2

Macroevolution	Microevolution
-Refers to changes between _____ species. - Patterns and _____ among living things over long _____ _____ and comparison between _____	-Change in allele frequencies of a _____ over time. - Occurs on a _____ scale. - Looks at a _____ population. - Lead through _____
Example:	Example:

- \_\_\_\_\_ acts on the distribution of \_\_\_\_\_:
- Many \_\_\_\_\_ in a population result of \_\_\_\_\_ rather than \_\_\_\_\_ traits
- NS never acts directly on \_\_\_\_\_.
- NS can only affect which individuals \_\_\_\_\_ & \_\_\_\_\_.
- \_\_\_\_\_: phenotypes near the \_\_\_\_\_ of the range tend to be most \_\_\_\_\_, while \_\_\_\_\_ are \_\_\_\_\_



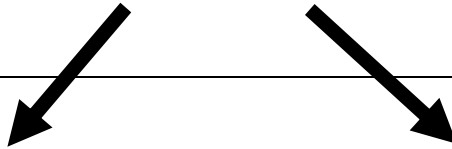
### Natural selection can change the distribution of a trait in 3 ways

1. Directional Selection	2. Stabilizing selection	3. Disruptive selection
- Favors phenotypes at one _____ of a trait's range - Individuals at one _____ of the curve have higher _____ • Examples:	- Favors individuals near the _____ of a curve have higher fitness than individuals at either end • What kind of phenotypes are favored in a population?	- Favors _____ traits - The _____ & _____ ends of the curve have higher fitness. - One population divided into _____

## OTHER MECHANISMS OF EVOLUTION 11.3

- Other factors besides natural selection may lead to evolution

Other Mechanisms of Evolution		
1. Gene Flow	2. Genetic Drift	3. Sexual Selection
- Of _____ from one population to another - Gene flow between _____ species keeps their gene pools _____ - A _____ of gene flow in a population leads to different _____ Ex: _____ and _____	- Changes in allele frequencies due to _____ alone - Occurs in _____ population - Causes gene pools of _____ populations to become _____ as alleles are _____ or _____ - Loss of _____ <b>Caused by 2 things:</b>	- Occurs when certain traits _____ _____ _____



Bottleneck Effect	Founder Effect
Occurs after a _____ event _____ the _____ of a population Ex: _____	Genetic drift that occurs after a small number of individuals _____ a new _____ Ex: _____
<p>Original population → Bottlenecking event → Surviving population</p>	

- Genetic drift has \_\_\_\_\_ effects on a population.
  - less likely to have some individuals that can \_\_\_\_\_
  - \_\_\_\_\_ alleles can become more common due to \_\_\_\_\_

**GENETIC EQUILIBRIUM 11.4**

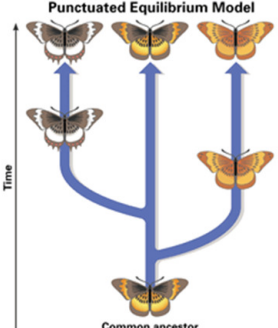
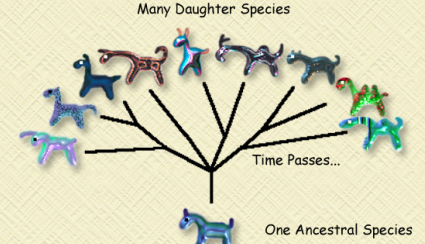
- Genetic equilibrium - when frequencies remain \_\_\_\_\_, the population will not \_\_\_\_\_
- 5 conditions are required to maintain genetic equilibrium and \_\_\_\_\_:
  - Very \_\_\_\_\_ population
  - No \_\_\_\_\_ or \_\_\_\_\_
  - No \_\_\_\_\_
  - \_\_\_\_\_ mating
  - No \_\_\_\_\_

**SPECIATION THROUGH ISOLATION 11.5**

- Speciation - \_\_\_\_\_
- \_\_\_\_\_ between 2 populations must \_\_\_\_\_ in order for them to become new species
- \_\_\_\_\_ leads to \_\_\_\_\_
- As new species \_\_\_\_\_, populations become \_\_\_\_\_ from each other.
- Overtime they can \_\_\_\_\_ so much that they become unable to \_\_\_\_\_ as they adapt to their \_\_\_\_\_

4 Isolation Mechanisms			
1. Reproductive Isolation	2. Behavioral Isolation	3. Geographic Isolation	4. Temporal Isolation
2 populations can't _____ & produce fertile _____	2 populations are capable of interbreeding but have differences in _____ rituals or other reproductive _____ that involve _____	2 populations are separated by geographic _____ like rivers, mountains, or bodies of water	2 or more species reproduce at _____ times
Ex:	Ex:	Ex:	Ex:

**PATTERNS OF EVOLUTION 11.6**

<p><b>Convergent evolution</b></p>	<p>- Evolution toward _____ characteristics in _____ species</p> <p>- Structurally _____ and appearance but _____ through _____ evolutionary pathways.</p>	
<p><b>Divergent Evolution</b></p>	<p>- The process _____ related species becoming more and more _____.</p>	
<p><b>Coevolution</b></p>	<p>- Two or more _____ in response to _____ in each other</p>	
<p><b>Extinction</b></p>	<p>- The _____ of a species from Earth</p> <p>1.) _____ extinctions: Occurs _____ but at a low rate.</p> <ul style="list-style-type: none"> <li>• _____</li> </ul>	<p>Ex:</p>
<p><b>Extinction</b></p>	<p>2.) _____ extinctions: Occur _____ &amp; can destroys _____ species or families.</p> <ul style="list-style-type: none"> <li>• _____ have occurred</li> </ul>	<p>Ex:</p>
<p><b>Punctuated equilibrium</b></p>	<p>- Speciation occur _____ followed by long _____ of _____ activity.</p>	 <p>Punctuated Equilibrium Model</p> <p>Time</p> <p>Common ancestor</p>
<p><b>Adaptive radiation</b></p>	<p>- Many species evolve from _____ species</p> <p>- _____ species usually adapt to a wide range of _____</p> <ul style="list-style-type: none"> <li>• When and how does adaptive radiation usually happen?</li> </ul>	 <p>Many Daughter Species</p> <p>Time Passes...</p> <p>One Ancestral Species</p>