**Evolution Recap: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, not \_\_\_\_\_\_\_\_\_\_\_\_\_ evolve.**

**Darwin’s Theory**

1)

2)

3)

4)

**Evidence of Evolution**

1) Fossils

2) Biochemical Evidence

3) Vestigial Structures

4) Embryonic Development

5) Homologous Structures

**Patterns in Evolution**

|  |  |
| --- | --- |
| Convergent Evolution | Divergent Evolution |

**Selection Patterns**

Directional Disruptive Stabilizing

**Genetic Drift Speciation**

 Temporal

Behavioral

Geographic

Evolution Recap: Populations, not individuals evolve.

**Darwin’s Theory**

1) Organisms overproduce ex) Fish and Insects

 (Why? Struggle for existence because of competition)

2) There is variation in all populations (Variations means differences)

 Ex) Peppered Moths

3) Some of these variations are better suited to the environment then other

 variations, this gives these organisms a higher fitness level.

 Higher fitness = better chance of survival

4) Those with better variations (called adaptations) are more likely to pass on

 these traits

 Inheritance of beneficial traits = change population gene pool over time.

 Types of Adaptations: Structural (Beak),

 Behavioral (Using Tools),

 Physiological (Produce chemicals like poison/enzymes)

**Evidence of Evolution**

1) Fossils – Relative (Comparison to each other) and Radiometric Dating (More accurate)

2) Biochemical Evidence – Most reliable, DNA, RNA, and Proteins

3) Vestigial Structures – Existing structures which are no longer used.

 Ex) Appendix in humans

4) Embryonic Development – Look at embryo (early stages) and it is hard to tell

 them apart.

5) Homologous Structures – Structures which look similar but no longer serve the

 same purpose.

 Ex) Human Arm and Cat Front Leg

**Patterns in Evolution**

|  |  |
| --- | --- |
| Convergent EvolutionNo common ancestor but have similar traits due to their similar environmental pressuresAnalogous Structures – Different structure, same function | Divergent EvolutionCommon ancestor but have evolved variations due to different selection pressures such as food source.Ex) Adaptive Radiation of Darwin’s FinchesHomologous Structures – Same structure, different function. |

**Selection Patterns**

Directional Disruptive Stabilizing

Favors one extreme Favors both extremes Favors the average



**Genetic Drift**

By chance

Small pop isolated from remaining members

New population lacks variation

**Speciation = Formation of a New Species (Require Reproductive Isolation)**

Temporal – Different Mating Times

Behavioral – Different Mating Patterns

Geographic – Physical Barrier Separates Them from Each Other