Science 10 Name:_____

Mr. Korbutt Blk:_____ Date:_____

Speciation & Extinction Notes

Objectives

- Know how Natural Selection impacts the diversity of life.
- Understand and be able to describe how the following relate to / impact natural selection
  - Speciation
  - Adaptive Radiation
- Extinctions

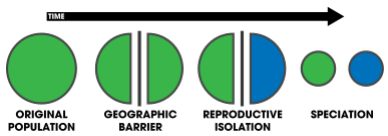
Speciation

- **Concept: Natural selection can lead to the formation of new species.**
- _____ individuals Speciation is the process by which one species _____ into _____ species.
- Speciation explains the features shared between organisms due to **inheritance** from their recent ancestors.
- • Populations must become _____ _____. Meaning something is preventing these populations from inter breeding
- • There are many ways this can occur:

1. Populations become _____ / _____ _____by a barrier preventing the two groups from _____

- Ex. A river, a lava flow, island, canyon

What is a barrier for one species may not be a barrier for another.



  - Ex. A river is a barrier to a squirrel but not to a bird.

2. _____ _____ and other factors such a _____ will act on the separate populations

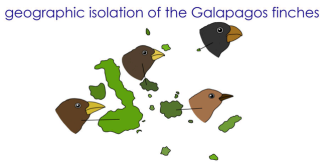
3. Overtime, the two populations will become so different they _____ _____ and are no longer the same _____

Adaptive Radiation

- Is the process in which one species gives rise to _____ to take advantage of different _____
- A niche is the _____ _____of a species; the set of resources it consumes and the habitats is occupies

Darwin's Finches

- On the 4 Galapagos islands Darwin visited he noticed that although very similar to the finches on the mainland South America the Galapagos finches differed in the **body size, _____ _____, song** and **feeding behavior**
- How could this happen?



- ~2 million years ago a common ancestor arrived on the Galapagos
- Being **geographically isolated** from the birds on the mainland and from birds on other islands over many generations they became **reproductively isolated**
- The different niches exert _____ _____that push the populations in various directions
- On the various islands, the fish species have become adapted for eating different seeds, insects, flowers and fruits.

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Extinction and Selection

- Selection pressure can cause new species to form, but it can also cause species to become _____
- _____occurs when a species completely _____from Earth
- 99.9% of all species that have lived are now extinct
- Even though global biodiversity has increase over the past 500 million years, there have been several steep declines. These are known as _____ _____ _____
- The most recent mass extinction was during the _____ _____ period (65mya) when an asteroid hit the earth and caused the extinction of the _____.

Are We in the Sixth Mass Extinction?

- Extinction is a natural process, but it's currently happing at _____ times the **normal speed**
- Extinction rates tend to _____when global _____ _____.
- Today the biggest threat to our planet's species are _____.
- There were ~1.8 billion people in 1900. The worlds population is expected to reach 8 billion in 2023
- All these people are using more and more resources, leaving fewer resources for the deaths other species
- The major causes of extinction today are:
- _____loss
- _____
- _____species
- _____
- Global _____

Assignment

- Read p. 17-18, 47-57
- Workbook Ch 1.3
- Answer questions on bottom of page 49 and 53