Chapter 4 Summary

- **Biodiversity** - variety of earth’s species, the genes they contain, the ecosystems in which they live, and the ecosystem processes such as energy flow and nutrient cycling
  - species diversity
  - genetic diversity
  - ecosystem diversity
  - functional diversity (matter cycling and energy flow)
    - ex) an american alligator supports these processes within its ecosystems and helps maintain other species of animals and plants that live there - diminishing due to habitat destruction
    - estimated 8.7 million species on earth

- **Biological Evolution** - process whereby earth’s life changes over time through changes in the genes of populations
  - natural selection

- **Fossils** - mineralized or petrified replicas of skeletons, bones, teeth, shells, etc.
  - fossil record

- **Mutations** - random changes in the structure or number of DNA molecules in a cell that can be inherited

- **When an environment changes** - options
  - Adaptation - inherited trait that enables survival through natural selection
  - Differential Reproduction - enables individuals with the trait to leave more offspring than other members of the population leave
    - genetic resistance

- **Limitations to Adaptations**
  - climate change
  - evolutionary adaptation

- **How Geologic Processes Affect Natural Extinction**
  - location of continents and oceanic basins influence earth’s climate which influences where plants and animals can live
  - movement of continents has allowed species to move and form new species through natural selection