Unit 3 - Ecology & Biodiversity Outline:

A. Ecosystem Structure
    a. Biological populations and communities - *differentiate between population, ecosystem, community, biotic & abiotic*
    b. Ecological niches - *explain what a niche is and how it varies depending on biodiversity*
    c. Interactions among species - *parasitism, commensalism, mutualism, competition, etc.*
    d. Keystone species - *explain what a keystone species is and provide examples based on a specific food web*
    e. Species diversity and edge effects - *factors that limit or increase diversity; species richness vs. evenness; explain edge effect and why it occurs, impacts*
    f. Major terrestrial and aquatic biomes - *what determine biome; basic factors that define each biome; relate to GPP & NPP*
B. Energy Flow
    a. Photosynthesis and cellular respiration - *understand equation and relationship between both; how they impact carbon/oxygen cycles; factors that impact each*
    b. Food webs and trophic levels - *power of 10 rule; energy transfer; changes in trophic levels; impacts to changes in levels*
    c. Ecological pyramids - *loss of energy; number of producers vs. consumers*
C. Ecosystem Diversity
    a. Biodiversity - *define and explain factors that impact; terrestrial and aquatic biodiversity; human and natural impacts; methods to to sustain biodiversity*
    b. Natural Selection - *define and give examples; factors that impact; necessary conditions for occurance*
    c. Evolution - *define and give examples; necessary conditions*
    d. Ecosystem services - *invasive species, endangered species, population control, predator-prey relationships*
D. Natural Ecosystem Change - *impact to biodiversity and ecosystem; provide examples*
    a. Climate shifts
    b. species movement
    c. Ecological succession - *primary vs. secondary succession; where each occur; necessity of succession and how it is impacted by natural and*
E. Natural Biogeochemical Cycles - *sources and sinks; understanding of impacts for each*
    a. Carbon
    b. Nitrogen
    c. Phosphorus
    d. Sulfur
    e. Water
    f. Conservation of Matter - *how does it apply to cycles and Earth as a system*