**Chapter 3 Test Review**

**There will be 50 multiple-choice questions. The following topics and vocabulary are important to study.**

* Abiotic
* Biotic
* Ecosystem
* Energy flow in ecosystems
* Photosynthesis and respiration, reactants and products
* What organisms perform photosynthesis and cell respiration
* Differences between food chains and food webs
* Suns energy transmitted to autotrophs, also 10% rule, energy efficiency of energy flowing through the ecosystem
* Second law of thermodynamics and energy flow
* NPP, GPP, respiration, know how to figure this out
* How is energy lost in a system
* Autotrophs, heterotrophs, decomposers, scavengers, detritivoires, consumers and producers
* Biogeochemical Cycles, parts, human impacts and how they affect the cycles
* Atmospheric composition
* Carbon dioxide in the atmosphere and human impacts
* Resilience, resistance, restoration ecology
* Disturbance, intermediate disturbance hypothesis
* Instrumental values, intrinsic values, ecological services

**Calculations:**

Npp and Gpp problems and any other math we did so far.

**Essay topics:**

1. Be able to discuss any aspect of the primary production lab from the introduction through the methods, data collected and conclusions.

2. Be able to discuss the complexity of ecosystems both the living organisms interacting with the non-living environment. The roles of organisms and their specific roles in sustaining life within the ecosystem. You should be able to identify the producers, consumers and decomposers in ecosystems and know how energy moves through an ecosystem.