**Study Checklist for Biology Test 1**

**Standard 1, Objective 1 – Ecology**

* Be able to describe the flow of energy in an ecosystem. Which direction does it go – from where to where? What are the trophic levels?
* What is the original source of energy for all living things on this planet, even producers?
* Know where each organism is placed in a food chain. If given a food chain example, can you place each organism in its proper place?
* Why does energy decrease with each subsequent level in an energy pyramid? Where did the energy go?
* How much energy is retained and passed on in each level of an energy pyramid? How much is lost?
* If you are given the amount of kcals in the producer of an energy pyramid, can you calculate the kcals in subsequent levels?
* In which level of the energy pyramid would you find the most organisms? As you move up the energy pyramid, what happens to the number of organisms?
* What are some strategies that animals use to conserve energy and why do they need to conserve energy?
* Define energy balance.
* How can you know if an animal’s energy income and energy expenditure are balanced? How do you know when they are out of balance?
* What are some differences between United States’ food production and less-developed countries’ food production?
* What are some reasons for the amount of CO2 that the United States emits, as it pertains to food production?
* What is a producer? A primary consumer? A secondary consumer? A tertiary consumer? A quaternary consumer? A decomposer?
* What is the difference between a food chain and a food web?
* If shown a food web, can you trace the many food chains and recognize the levels (producer, primary, secondary, tertiary, quaternary)?
* What is a “factory farm”? Do we have many of these in the United States? Why?
* Know your carbon cycle: How does carbon get into the soil? The atmosphere? The ocean? How do humans affect the carbon cycle?
* Know your nitrogen cycle: How does nitrogen get into the soil? The atmosphere? Into water sources? Where are the major nitrogen reservoirs?
* How are the carbon cycle and the oxygen cycle related? Which two processes contribute to their relationship?
* How does atmospheric nitrogen become available for uptake in plants?
* What are the definitions of evaporation, condensation, transpiration, precipitation, and runoff?
* Be able to trace the water cycle.
* What is the definition of a “limiting factor”?
* What are examples of limiting factors?
* Define “evidence” and “inference”. Be able to recognize examples of both.
* Define “symbiosis”.
* What is mutualism? Commensalism? Parasitism?
* Define the following relationships: Predator-Prey, Competition. Be able to recognize examples of each.
* Define “abiotic” and “biotic”. What are some examples of each?
* Define “biodiversity”.
* Define “variable” and “constant” as they pertain to ecosystems and science experiments.
* Know the difference between “quantitative” and “qualitative” observations and data. Be able to recognize examples of each.
* What are ways that human interaction affects the carbon and nitrogen cycles?