**Ecology Unit (approx. seven weeks)**

**SEV1.** Students will investigate the flow of energy and cycling of matter within an ecosystem and relate these phenomena to human society.

**SEV2**. Students will demonstrate an understanding that the Earth is one interconnected system.

**SEV3.** Students will describe stability and change in ecosystems.

**Students are expected to:**

* Distinguish between the biotic and abiotic factors in an ecosystem.
* State the levels of organization in organisms beginning with atom and ending with biosphere.
* Investigate the relationships among organisms, populations, communities, ecosystems, and biomes.
* Define the following terms and their relationships to each other: organism, population, community, habitat, niche, ecosystem, and biome.
* Comparing the quantity of energy in the steps of an energy pyramid.
* Identify the characteristics of the seven major biomes (tundra, taiga, temperate deciduous forest, temperate grassland, savanna, desert, tropical rainforest and their distinguishing characteristics (temperature, rainfall, typical species). In which biome do we live?
* Relate animal adaptations, including behaviors, to the ability to survive stressful environmental conditions.
* Explain the flow of matter and energy through ecosystems by arranging components of a food chain according to energy flow.
* Explaining the need for cycling of major nutrients (C, O, H, N, P). Relate environmental conditions to successional changes in ecosystems.
* Relate animal adaptations, including behaviors, to the ability to survive stressful environmental conditions.
* Describe and diagram the flow of matter and energy through an ecosystem using terms such as autotroph, heterotroph, primary producer, primary consumer, secondary consumer, and decomposer.
* Be able to analyze the food chain or food web to determine the role of a given organism.
* Explain the concepts of trophic level and energy pyramid. Explain why many producers are required to support very few top consumers.
* Relate environmental conditions to successional changes in an ecosystem.
* Describe succession from pioneer species to the climax community.
* Explain primary and secondary succession.
* Relate plant adaptations, including tropisms to the ability to survive stressful environmental conditions.
* Compare parasitism, mutualism, and commensalism and give an example of each.
* Identify two types of predator adaptations. Identify two types of prey adaptations.
* There will be multiple quizzes and two test on ecology.