Layne Bee

BGSU – EDTL 7100

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**Curriculum Design Project – Unit Intended Learning Outcomes**

**Subunit One: Flow of Energy**

* Students will define ecology. (knowledge)
* Students will identify an object as abiotic or biotic. (comprehension)
* Students will classify a relationship as predation, competition, parasitism, mutualism, and commensalism. (comprehension)
* Students will interpret a predator/prey graph over time. (application)
* Students will exemplify biological relationships that exist within an ecosystem. (comprehension)
* Students will compare how various types of biological relationships affect the organisms involved. (analysis)
* Students will explain how symbiotic relationships maintain balance in an ecosystem. (comprehension)
* Students will construct food webs that show accurate relationships among organisms within an ecosystem. (synthesis)
* Students will infer the impact of removing a specific organism from a food chain/web. (analysis)
* Students will explain why solar energy is the ultimate source of energy flow in most ecosystems. (comprehension)
* Students will comprehend why energy flow among organisms is in one direction. (comprehension)
* Students will recognize that humans are the highest consumer in the biosphere. (comprehension)
* Students will summarize how relationships among organisms generate stability within an ecosystem. (synthesis)
* Students will infer how human consumption will affect a particular food web. (analysis)

**Subunit Two: Cycling of Matter**

* Students will recall that matter is neither created nor destroyed and therefore cycles in and out of different parts of an ecosystem. (knowledge)
* Students will contrast the difference between the way energy and matter move in an ecosystem. (analysis)
* Students will summarize how organisms help cycle matter through biogeochemical cycles like the nitrogen cycle, the carbon cycle, and the water cycle. (comprehension)
* Students will interpret a diagram or illustration of one of the three biogeochemical cycles. (application)
* Students will describe how human activities contribute to the cycling of carbon. (comprehension)
* Students will infer how the removal of a key organism will impact the cycling of matter in an ecosystem. (analysis)
* Students will examine how pollution affects the water cycle. (analysis)
* Students will explain how deforestation affects the speed at which carbon dioxide can re-enter the carbon cycle. (comprehension)
* Students will construct a cause-and-effect model depicting how cycles maintain stability in an environment. (synthesis)
* Students will predict the results of a decreased amount of bacterial activity on the nitrogen cycle. (evaluation)

**Subunit Three: Sustainability**

* Students will define sustainability. (knowledge)
* Students will explain how human activities affect the physical and chemical cycles and process of the Earth. (comprehension)
* Students will construct a graph of human population growth during the last 500 years. (synthesis)
* Students will define carrying capacity. (knowledge)
* Students will examine whether a human activity has a positive or a negative effect on the environment. (analysis)
* Students will explain how rate of population growth is determined by resources that are available. (comprehension)
* Students will identify limiting factors. (comprehension)
* Students will exemplify the types of human activities that have negative impacts. (comprehension)
* Students will describe how human activities can have a negative effect on the environment. (comprehension)
* Students will compile ways to decrease their impact on the environment. (synthesis)
* Students will record a daily log of personal impacts on the environment in terms of material consumption, life style choices, transportation, and energy use. (synthesis)
* Students will assess their daily impact on the environment. (evaluate)
* Students will design a plan to help their class/school decrease their impact on the environment. (synthesis)