Hellbender Education

LESSON PLAN 1: GENERAL ECOLOGICAL CONCEPTS

MIDDLE SCHOOL STANDARDS ADDRESSED:

Tennessee	**6.LS2: Ecosystems: Interactions, Energy, and Dynamics** 1. Evaluate and communicate the impact of environmental variables on population size. 2. Determine the impact of competitive, symbiotic, and predatory interactions in an ecosystem. 3. Draw conclusions about the transfer of energy through a food web and energy pyramid in an ecosystem. 6. Research the ways in which an ecosystem has changed over time in response to changes in physical conditions, population balances, human interactions, and natural catastrophes. 7. Compare and contrast auditory and visual methods of communication among organisms in relation to survival strategies of a population. **7.LS2: Ecosystems: Interactions, Energy, and Dynamics** 1. Develop a model to depict the cycling of matter, including carbon and oxygen, including the flow of energy among biotic and abiotic parts of an ecosystem.

HIGH SCHOOL STANDARDS ADDRESSED:

Tennessee	**BIO1.LS2: Ecosystems: Interactions, Energy, and Dynamics** 1. Analyze mathematical and/or computational representations of population data that support explanations of factors that affect population size and carrying capacities of populations within an ecosystem. Examine a representative ecosystem and, based on interdependent relationships present, predict population size effects due to a given disturbance. 4. Analyze data demonstrating the decrease in biomass observed in each successive trophic level. Construct an explanation considering the laws of conservation of energy and matter and represent this phenomenon in a mathematical model to describe the transfer of energy and matter between trophic levels.