

## UNIT OF STUDY

Title: Cycles of Life		Subject/Course: Biology	Length: 9 weeks
Topic: Ecology and Behavioral Relationships		Grade: 9-12	Designer: LouAnn Howell
UNIT GOALS AND EXPECTATIONS			
<b>IMPORTANT CONCEPTS/UNDERSTANDINGS:</b> In an ecosystem there are levels of energy which are comprised of populations of organisms. These populations interact with one another as well as environmental factors which influence their survival.		<b>ESSENTIAL QUESTIONS:</b> What are examples of abiotic and biotic factors of ecosystems?  What are the characteristics of biomes?  What are the carbon, nitrogen, phosphate and water cycles in an ecosystem?  How does an ecosystem's energy flow through food chains, food webs, and energy pyramids?  What factors, including predation, competition, crowding, water, nutrients, and shelter, control populations?	
<b>STUDENT LEARNING EXPECTATIONS:</b> EBR.8.B.1 Cite examples of abiotic and biotic factors of ecosystems. EBR.8.B.2 Compare and contrast the characteristics of biomes. EBR.8.B.3 Diagram the carbon, nitrogen, phosphate, and water cycles in an ecosystem. EBR.8.B.4 Analyze an ecosystem's energy flow through food chains, food webs, and energy pyramids. EBR.8.B.5 Identify and predict the factors that control population, including predation, competition, crowding, water, nutrients, and shelter. EBR.8.B.8 Identify the properties of each of the five levels of ecology: organism, population, community, ecosystem, biosphere.			
<b>SPECIFIC DECLARATIVE KNOWLEDGE – What I know</b> Understand a population consists of all individuals of a species that occur together at a given time. All populations living together and the physical factors with which they interact compose an ecosystem. Know that populations of organisms can be categorized by the function they serve in an ecosystem. Understand the major source of energy for an ecosystem is sunlight. Know that the energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis. Explain the number of organisms and ecosystem can support depends on the resources available and abiotic factors, such as quality of light and water, range of temperatures, and soil composition. Identify living and nonliving things. Describe characteristics of biomes. Compare factors that control population size.		<b>SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do</b> Illustrate ecosystem cycles. Depict how energy flows through an ecosystem. Distinguish among the levels of ecology. Examine effects that humans have on the environment. Examine current science issues that affect the world.	
UNIT ASSESSMENTS (Include tasks related to Dimensions 3 and 4 and Bloom's Taxonomy)			
Written protocol on labs using science notebook Illustrations on the characteristics of a biome			

<b>Traditional Assessments:</b> Quizzes Assessments	<b>Other Evidence of Learning:</b> Notebook entries Observations of Labs
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ACTIVITIES AND LEARNING EXPERIENCES	Resources
Students will recognize living and nonliving things by matching living/nonliving things by going outside to chart living and nonliving things that can be seen.	Ecology, Unitedstreaming
Students will locate pictures or representations of living and non living things.	Ecology, Unitedstreaming
Students will distinguish between producers and consumers by sorting pictures of plants and animals on a T- Chart .	Ecology, Unitedstreaming
Students will arrange pictures in order of ecology levels.	Ecology, Unitedstreaming
Recognize the effects that humans have on the environment: pollution, global warming, picking up trash, recycling.	Ecology, Unitedstreaming
Students will examine current science issues that affect the world by identifying current would issues with a scientific theme.	News papers, television, Unitedstreaming
Water Cycle, Oxygen Cycle, Nitrogen Cycle games,	
Oh Deer and Carrying Capacity games	Project Wild
The Greenhouse Effect	
Career Connections	
Game and Fish Commission Game Warden Veterinarian Tech	