

UNIT OF STUDY

Title: The Biosphere	Subject/Course: Biology Length: 2 weeks
Topic: Ecology and Behavioral Relationships(1)	Grade: 10 th grade Designer: Woods
UNIT GOALS AND EXPECTATIONS	
<p>IMPORTANT CONCEPTS/UNDERSTANDINGS: Living systems require a continuous input of energy to maintain their chemical and physical organizations. With death, and the cessation of energy input, living systems rapidly disintegrate. The energy for life primarily derives from the sun. The complexity and organization of organisms accommodates the need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism. The distribution and abundance of organisms and populations in ecosystems are limited by the availability of matter and energy and the ability of the ecosystem to recycle materials. As matter and energy flows through different levels of organization of living systems – cells, organs, organisms, communities – and between living systems and the physical environment, chemical elements are recombined in different ways. Each recombination results in storage and dissipation of energy into the environment as heat. Matter and energy are conserved in each change.</p>	<p>ESSENTIAL QUESTIONS: Why is it important to understand how energy is transferred throughout the ecosystem? Why is it important to understand how matter is transferred throughout the ecosystem? How is the transfer of energy different from the transference of matter?</p>
<p>STUDENT LEARNING EXPECTATIONS: EBR.8.B.3 Diagram the carbon, nitrogen, phosphate, and water cycles in an ecosystem. EBR.8.B.4 Analyze a system’s energy flow through food chains, food webs, and energy pyramids. EBR.8.B.8 Identify the properties of the five levels of ecology: -organism -population -community -ecosystem -biosphere</p>	
<p>SPECIFIC DECLARATIVE KNOWLEDGE – What I know Identify the levels of organization that ecologists study. Describe the methods used to study ecology. Identify the source of energy for all life processes. Trace the flow of energy through living systems. Evaluate the efficiency of energy transfer among organisms in an ecosystem. Describe how matter cycles among the living and nonliving parts of an ecosystem. Describe how the availability of nutrients affects the productivity of ecosystems.</p>	<p>SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do Identify levels in a food chain and food web. Name sources of nutrients in the ecosystem.</p>

UNIT ASSESSMENTS (Include tasks related to Dimensions 3 and 4 and Bloom's Taxonomy)	
"Ivory Billed Woodpecker" Open Response "Please Re-Leaf Me!" Lab Assignment	
Traditional Assessments: "Ivory Billed Woodpecker" Open Response "Please Re-Leaf Me!" Lab Assignment Open Response	Other Evidence of Learning: Cycling project

ACTIVITIES AND LEARNING EXPERIENCES	Resources
Current Event Open Response "Please Re-Leaf Me!"-Biology with the TI-83 "What's Ecology?"-Powerpoint Some type of Cycling project?	Prentice Hall Textbook: Biology TI-83's Internet Powerpoint
Career Connections	
Plant Pathologist	