UNIT OF STUDY

Title: Populations and Humans in the Biosphere **Subject/Course**: Biology **Length**: 2 weeks

Topic: Ecology and Behavioral Relationships(3) **Grade:** 10th grade   **Designer:** Woods

UNIT GOALS AND EXPECTATIONS

IMPORTANT CONCEPTS/UNDERSTANDINGS: Organisms both cooperate and compete in ecosystems. The interrelationships and interdependencies of these organisms may generate ecosystems that are stable for hundreds or thousands of years. Living organisms have the capacity to produce populations of infinite size, but environments and resources are finite. This fundamental tension has profound effects on the interactions between organisms. Human beings live within the world's ecosystems. Increasingly, humans modify ecosystems as a result of population growth, technology, and consumption. Human destruction of habitats through direct harvesting, pollution, atmospheric changes, and other factors is threatening current global stability, and if not addressed ecosystems will be irreversibly affected.	ESSENTIAL QUESTIONS: How can interactions among organisms determine changes in population? How does the human population change differently for the populations of other organisms? What environmental factors can control populations? How are humans having a negative affect on the environment? What are humans doing to counteract their actions?

STUDENT LEARNING EXPECTATIONS:
EBR.8.B.5 Identify and predict the factors that control population, including predation, competition, crowding, water, nutrients, and shelter.
    - limiting factors
    - carrying capacity
    - growth curves
EBR.9.B.1 Analyze the effects of human population growth and technology on the environment/biosphere
EBR.9.B.2 Evaluate long range plans concerning resource use and by-product disposal in terms of their environmental, economic, and political impact
EBR.9.B.3 Assess current world issues applying scientific themes (e.g., global changes in climate, epidemics, pandemics, ozone depletion, UV radiation, natural resources, use of technology, and public policy)	

SPECIFIC DECLARATIVE KNOWLEDGE – What I know Identify the factors that affect population size. Differentiate between exponential and logistic growth. Identify factors that could limit population growth. Differentiate between density-dependent and density-independent limiting factors. Describe human activities that can affect the biosphere. Identify the characteristics of sustainable development. Describe the goal of conservation biology. Describe two types of global change that are of concern to biologists.	SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do Identify different growth patterns based on population graphs. Determine what can be done by each student to encourage conservation.

UNIT ASSESSMENTS
(Include tasks related to Dimensions 3 and 4 and Bloom's Taxonomy)

"Is There A Limit?" Assignment
"Hare Today, Gone Tomorrow" Assignment

Traditional Assessments:	Other Evidence of Learning:
"Is There A Limit?" Assignment	"Endangered Species Project"
"Hare Today, Gone Tomorrow" Assignment	Carbon Footprint Research
"Blown Away" Open Response	
"What's in the Water?" Activity	
Test	

ACTIVITIES AND LEARNING EXPERIENCES	Resources
"Is There A Limit?"- TI-83 Pairs Lab	
"Hare Today, Gone Tomorrow"- TI-83 Pairs Lab	Prentice Hall Textbook:
"Endangered Species Project" Individual Research	Biology
Establish Habits of Mind for Science in Critical Thinking, Creative thinking, and Self Regulated Thinking	TI-83's
Vocabulary Strategy	Internet
Daily Notebook Entries	Powerpoint
"Blown Away" Open Response	
"What's in the Water?" Activity	

Career Connections

Add career connection