

Science 1206 Outcomes- Unit One

Saw It	Know It	
		define sustainability
		define paradigm
		describe an example to illustrate a paradigm shift
		examine the attitudes and practices of our forefathers in terms of the taking of natural resources in relation to the concept of sustainability
		discuss how attitudes toward our forests have changed with respect to commercial usage, residential usage, and replanting programs
		discuss the conditions necessary for a sustainable fishery
		explain how a paradigm shift can change scientific world views in understanding sustainability
		explore and develop a concept of sustainability in relation to a natural resource industry (e.g., forestry, fishery, agriculture, aquaculture, mining, tourism, or others)
		examine historical attitudes and practices in relation to those of sustainability
		communicate questions, ideas and intentions and receive, interpret, understand, support and respond to the ideas of others with respect to environmental attitudes
		define paradigm shift

Saw It	Know It	
		discuss how attitudes towards pesticides have changed
		define ecology and ecosystem
		distinguish between biotic factors and abiotic factors and describe examples to illustrate each
		explain how abiotic factors affect the sustainability of the ecosystem
		describe examples to illustrate biotic interactions
		describe ways that organisms respond to changes in environmental conditions
		describe symbiotic relationships including: mutualism, commensalism, parasitism, and predation
		describe trophic structure in terms of food chains and food webs
		explain how biotic and abiotic factors affect ecological interactions and the distribution of organisms
		explain biotic and abiotic factors that keep natural populations in equilibrium and relate this equilibrium to the resource limits of an ecosystem
		define abiotic factors (include space, temperature, oxygen, light, water, inorganic and organic soil nutrients)
		define biotic factors (include decomposing animals, disease, predator/prey, competition, symbiosis)

Saw It	Know It	
		select, compile and display evidence and information from various sources, in different formats, to support a given view in a presentation about ecosystem change
		define succession
		describe the factors that contribute to succession
		describe what is meant by the term climax community
		examine the flow of energy in ecosystems using the concept of the pyramid of energy
		explain how energy availability affects the total mass of organisms in an ecosystem and summarize this relationship in a pyramid of biomass
		describe and apply classification systems and nomenclature with respect to trophic levels in ecosystems define niche and relate it to habitat
		classify organisms as producer, consumer, autotroph, heterotroph, decomposer, herbivore, carnivore, omnivore, saprobe
		define competition and explain how competition arises among organisms
		differentiate between interspecific and intraspecific competition
		describe the feeding relationships in terms of competition, food chains, and food webs
		identify the conditions required for a stable self sustaining ecosystem

Saw It	Know It	
		describe the mechanisms of bioaccumulation (or bioamplification) caused by pesticide use, and explain its potential impact on the viability and diversity of consumers at all trophic levels
		examine the use of pesticides over the course of human history
		describe the impact that DDT usage has had on bird populations
		describe how continued DDT usage in third world countries is impacting bird populations
		examine the flow of energy through the ecosystem from the time it reaches the Earth from the Sun to the time it is lost as heat
		define albedo and explain how it affects energy flow
		explain the meaning of the terms primary productivity (gross primary productivity and net primary productivity)
		explain the concept of food chain (food web) and relate this to the flow of energy through the ecosystem
		explain how the many interrelated food chains (food web) provide for the stability of the community
		explain how energy availability affects biodiversity and the sustainability of ecosystems
		describe the concept of the pyramid of energy
		Describe the concept of the pyramid of numbers

Saw It	Know It	
		define niche and relate it to habitat
		explain the meaning of pest and give examples to illustrate
		evaluate the use of pesticides in today's world