

ECOSYSTEMS AND BIOGEOGRAPHY

KEYS TERMS

ecosystem	producers	nitrogen fixation
biotic components	primary consumers	nodules
abiotic componenets	secondary consumers	nitrification
autotroph	trophic levels	denitrification
heterotroph	pyramid of energy	eutrophication
gross primary	pyramid of biomass	biological magnification
productivity	pyramid of numbers	acid rain
net primary productivity	top predators	limiting factors
detritus	biogeochemical cycles	Law of the Minimum
detritivore	water cycle	Law of Tolerance
food chain	carbon cycle	
food web	nitrogen cycle	

QUESTIONS

1. Diagram the flow of energy through an ecosystem, including the following: producers, decomposers, primary consumers, secondary consumers, tertiary. State the difference between a food chain and a food web.
2. Distinguish between gross primary productivity and net primary productivity.
3. Explain why the distribution of productivity within an ecosystem can always be represented as a pyramid, and why there are seldom more than four levels in a food chain. In doing so, specify the percentage of energy present at one trophic level that can usually be passed on to the next, and indicate the reason for the great decrease from level to level in the amount of available energy.
4. Using a diagram, describe the carbon cycle. In doing so, explain how carbon enters the living system, and how it leaves, indicate the role of microorganisms in the cycle, and identify the reservoir for carbon.
5. Using a diagram, describe the nitrogen cycle. In doing so, explain how nitrogen enters the living system, indicate the role of microorganisms such as bacteria in the cycle.
6. Explain the concept of biological magnification, use DDT, mercury or radioactive isotopes as your example.