

BIOLOGY TEST #2: ECOLOGY TEST – STUDY GUIDE

The Ecology test will take place on Tuesday (October 6) and Wednesday (October 7). The first day of the test will be matching, fill in the blank, short answer and essay. The second day of the test will be multiple choice, true/false and identification questions. (Short answer and essay questions should be answered in **complete sentences**, if you fail to do so you will not receive full credit.)

Preparing for the test, you should study your notes, text book (ch. 3 & 4), deer lab, videos, and quizzes.

- Distinguish between biotic and abiotic factors in an environment.
- Distinguish between climate and weather.
- List the biological hierarchy of organization, in order, from organism to biosphere and identify the defining characteristics at each level.
- Explain how the sun is the main energy source for almost all organisms on Earth.
- Why do plants photosynthesize? Why do plants store excess sugars? How is that useful for us?
- Distinguish an autotroph and a heterotroph. List examples of each.
- Describe how organisms get energy through chemosynthesis. Which organisms are capable of doing this?
- Distinguish the five different types of consumers.
- What is the difference between a decomposer and a detritivore?
- Explain how to interpret the arrows of a food chain.
- Explain why food chains are not very representative of feeding relationships in ecosystems and why food webs are a better representation.
- Describe the energy transfer rule (i.e. 10% rule) and how it limits the number of trophic levels in an ecosystem.
- Explain the role of decomposers and detritivores in food webs.
- Identify the different trophic levels in a food chain.
- Distinguish the three types of ecological pyramids.
- Describe biomass and what organisms in a food chain have the most and least biomass.
- Distinguish between a niche and habitat.
- Describe the five types of community interactions and give two examples of each. Know how each organism is affected by the interaction.
- List examples of ecological resources that organisms compete for.
- Explain why parasites usually don't kill their hosts.
- Describe what occurs in the water, carbon, nitrogen and phosphorous cycles. (make sure to read the text on this)
- Describe the role of bacteria in nitrogen fixation. Why are we so dependent upon them?
- Describe what a biome is and be able to give a definition and examples.
- Be able to identify each major terrestrial biome by its characteristics, and be able to give specific example characteristics of each terrestrial biome.
- Describe biodiversity and how it affects food webs.

Terms you should know (these always seem like pretty good terms to know for the fill in the blank questions):

Ecology	Food chain	Nitrogen fixation
Atmosphere	Food web	Denitrification
Climate	Trophic level	Succession
Weather	Energy pyramid	Primary succession
Climate zones	Biomass pyramid	Secondary succession
Currents	Pyramid of numbers	Pioneer species
Heat Transport	Competition	lichen
Species	Ecological resource	Climax community
Population	Predation	Tropical Rain Forest
Community	Predator	Taiga (boreal)
Ecosystem	Prey	Tropical Dry Forest
Biome	Symbiosis	Desert
Biosphere	Mutualism	Tropical Savanna (tropical grasslands)
Autotroph	Commensalism	Temperate Woodland and Shrub land
Producer	Parasitism	Temperate Grasslands (prairie)
Photosynthesis	Parasite	Temperate Deciduous forest
Chemosynthesis	Host	Tundra
Heterotrophs	Predator-prey relationship	Northwestern Coniferous Forest
Consumer	Biodiversity	
Herbivore	Invasive species	Permafrost
Carnivore	Biogeochemical cycle	Tolerance
Omnivore	Evaporation	Deciduous
Detritivore	Transpiration	coniferous
Decomposer	Precipitation	
	Organic molecules	

Types of questions to anticipate:

- You should be able to supply the biological hierarchy of organization, in order, from organism to biosphere, identifying the defining characteristics at each level.
- You will be given descriptions of community interactions (competition, predation, mutualism, commensalism, parasitism) and you will be asked to identify the specific interaction taking place. (Some of these examples will come from the videos you have seen.)
- You will be expected to complete the chart that shows how each individual is affected in the different types of community interactions.
- You will be expected to interpret a food chain and food web, identifying the producers and the different types of consumers.
- You will be expected to interpret all of the following illustrations: energy pyramids, predator-prey relationships, and all four of the biogeochemical cycles (water, nitrogen, carbon, phosphorous).
- You will be expected to identify a biome from a brief description of it. You will also be expected to identify specific examples of animals, plants, climate, location, and special characteristics of each biome.