

AP Biology Ecology Test Study Guide

THIS TEST IS MAINLY APPLICATION OF THE CONCEPTS WE HAVE COVERED IN THIS UNIT. DO NOT RELY ON THIS STUDY GUIDE AS YOUR ONLY STUDY REFERENCE!!!!!!

Energy Flow/Matter Cycling (Be able to explain this concept –makes for good FRQ material)

- Read a food web, determine various food chains in the web, determine trophic levels of organisms.
- Relationships between photosynthesis and cell respiration in determining the productivity of an ecosystem. Productivity relates to an increase or decrease in biomass.
- Rule of 10 (avg 10% of energy is available from one trophic level to the next)
- Read Energy, Biomass, numbers pyramids
- Nitrogen Cycle (you will be given a diagram-have an understanding of the cycle)

Populations & Limiting Factors (Density dependent and Independent factors)

- What are the effects of disease, space, water, food, habitat fragmentation (human impact) on a population.
- Relationship between primary productivity and carrying capacity.
- Read population age structure diagrams
- Carrying Capacity, logistic growth curves
- Survivorship curves (Type 1,2,3)
- R and K selection
- Defense strategies (mimicry, defensive adaptations) refer to Biozone (Prey defense strategies)

Communities

- Interdependent nature of organisms. EX. How the reduction of one species due to disease can impact other organisms in the community.
- Predator/Prey relationships
- Ecological succession (primary/secondary), Biodiversity, monoculture
- Niches – realized, fundamental – patterns of distribution based on environmental or physiological factors –
- Symbiosis – mutualism, commensalism, parasitism (examples of each and how the organisms interact)

Calculations

- Logistic growth problem (refer to notes)
- Productivity Biomass calculation (refer to grass lab) FYI- 1 hectare=10,000 m² (You have one simple dimensional analysis problem)
- Rate problem (change in Y/change in X) or $(Y_2 - Y_1 / X_2 - X_1)$
- Graph – IV on X axis (ex. time), DV on Y axis (ex. DO) –understand relationship between light and dissolved oxygen concentration – how does this effect productivity over time?
- If asked to design an experiment... Problem, hypothesis, IV, DV, Control, constants, method, (possibly may ask for hypothetical data/conclusion)

Biomes

- What factors determine which Biomes are found at various latitudes?

Animal Behavior

- Is a particular animal behavior genetic or learned? How would you be able to test this?