**Ecosystem Ecology Study Guide**

**Food Webs**

* To be filled out while viewing the lecture and read the assigned text.

1. Used to describe the study of ­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and where they live, with the emphasis on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_between organisms and their \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Define Ecosystem in your own words.
3. An ecosystem requires ongoing inputs of:
4. Explain the statement “Energy flows and Nutrients Cycle”.
5. What are the starting ingredients needed by primary producers to make more complex molecules for their cell’s needs? (Hint: What exactly is photosynthesis and what molecules go into the process?).
6. Write out the general chemical equation for photosynthesis. In your own words, explain how this relates to cellular respiration.
7. What does it mean to be an autotroph? What is another term for autotroph?
8. Why do scientists make models?
9. Give four types of ecology models used in biology.
10. What is another name for consumer used in ecology?

What does the prefix “hetero” mean?

1. Identify the corresponding trophic level in an ecology model for the following types of organisms:
   * Plants or Cyanobacteria/blue-green algae =
   * Herbivores =
   * Carnivores that eat herbivores =
   * Carnivores that eat other carnivores =
2. From your prior knowledge, textbook or other sources give an example seen in a land based food chain for a primary producers and a consumer that you might see near your home.
3. What is the direction of the arrows in a food chain i.e. what do they point to?

Give an additional example of a food chain, beyond the one provided in the lecture.

1. What is the difference between a food chain and a food web?
2. What is the difference between a grazing and a detrital food chain?
3. What types of organisms are essential for nutrient cycling? What do they do that is so important?
4. An often confused concept is the difference between decomposers and detritivores. Give a brief description in your own words in the space below and provide examples. Note: This is a frequently asked final exam type of question.
5. Decomposers
6. Detritivore
7. What organisms compose the base of an energy or biomass pyramid?

Explain the significance of this in terms of what these foundational organisms provide to the community of organisms dependent upon them.

1. Explain how toxic substances can bio-accumulate in organisms as you increase in trophic levels. Why are top predators most susceptible to bio-magnification and how does this relate to the process of energy transfer and loss?
2. What are some examples of chemicals that bio-accumulate? (See if you can find other examples other than DDT)

**Terms to Master from the Text:**

(These may show on exams or in associated labs for this section)

Trophic level, herbivore, omnivore, carnivore, photosynthesis, biomass, detritus, efficiency, cellular respiration, chemoheterotrophs, chemoautotrophs, decomposers, metabolic heat, biomagnification