# **Ecology Objective Sheet**

Chapters 4 and 8

These are the learning goals for this unit. You will not turn in the answers to these, but this is your study guide for quizzes and tests. You may WANT to answer some of these on a separate piece of paper to help yourself focus and learn. ☺

1. Define “trophic levels”. Distinguish between producers and consumers. List and distinguish four types of consumers. Distinguish among scavengers, detritus feeders, and decomposers. Distinguish between photosynthesizers and chemosynthesizers, aerobic respiration and anaerobic respiration. Be able to draw and understand a food web.
2. What is the difference between abiotic and biotic factors? List three important physical factors and three important chemical factors that have large effects on ecosystems.
3. Define and give examples of biotic relationships (intraspecific and interspecific competition, predation, mutualism, commensalism, and parasitism).
4. Distinguish among the following roles played by species and give one example of each: native species, nonnative species, indicator species and keystone species. Be able to explain the terms exotic species and endemic species.
5. Write the formulas for respiration and photosynthesis. You will need to memorize these.
6. Describe the concept of range of tolerance (also called “law of tolerance”). Compare limiting factors in terrestrial and aquatic ecosystems.
7. What is the difference between a habitat and a niche? What is the difference between an organism’s fundamental niche and its realized niche? How does resource partitioning relate to the establishment of niches?
8. Define ecosystem services. Given an ecosystem, be able to identify and describe at least 5 ecosystem services provided by that ecosystem which are critical to life on earth.
9. How is net primary productivity calculated? Which ecosystems show the highest average net primary productivity?
10. Explain how an energy pyramid represents the flow of energy in a food chain without breaking the law of conservation of energy. Explain how there may be exceptions to pyramids of number and biomass but not energy.
11. What is the difference between primary and secondary succession? Give examples of each. List the categories of successional species and give one example of each. List three patterns that affect how succession occurs.
12. Describe the ecological role of fire in forest and prairie ecosystems.
13. Contrast surface fires and crown fires in forests.
14. How and why was fire suppression promoted in the US? What major fire event helped to change this policy?
15. How are prescribed burns used by forest and prairie managers?
16. How are wildfires different today from those of 50 years ago?
17. Describe the intermediate disturbance hypothesis. How does this relate to fires in prairies and forests?
18. Describe the four biogeochemical cycles: water, carbon/oxygen, nitrogen and phosphorus. For each, know the pathways of the molecules and why organisms need each of these materials.

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| **Monday Sept 8**  Notes – Trophic Cascades: Ecological relationships (Obj #1-4)  Intro to prairie project  HW – Finish Lab report; Quiz Wed/Th Obj #1-7 | **Tuesday Sept 9**  **LAB REPORT DUE – MAJOR GRADE**  Notes – Ecological principles (#1-7)  HW – Study for quiz Obj #1-7; use text pgs 71-81 and 177-182 for reference; wear closed toe shoes to class | **Wednesday Sept 10/Thurs Sept 11**  Quiz – Ecology Obj #1-7  Prairie Day! ☺ Time to go outside to see Wolf Prairie. (#1-8)  \*\*\*Wear closed-toe shoes. No flip flops!  HW – Comparative Niches assignment due Friday | **Friday Sept 12**  Comparative Niches due  Notes: Energy pyramids and Net primary productivity (#9,10)  HW – Worksheet practice –“ eating lower on the food chain” |
| **Monday Sept 15**  Quiz – Energy pyramids Obj #10  Notes: Succession (#11) | **Tuesday Sept 16**  Notes: Fire and prairies (#12-17) | **Wednesday Sept 17/Thurs Sept 18**  Notes: Biogeochemical cycles! (#18)  HW – study cycles for quiz | **Friday Sept 19**  Quiz – Biogeochemical cycles  Notes on cycles con’t.  HW – complete Ecology Free Response |
| **Monday Sept 22**  Free Response due  Review day: writing rock-solid free responses!  HW – study for Ecology test  **Open house! 6:00-8:30 – hope to see your folks!** | **Tuesday Sept 23**  Review day  HW – study for Ecology test | **Wednesday Sept 24/Th Sept 25**  **ECOLOGY TEST** |  |