Environmental Systems and Societies

*Study Guide for Ecosystems (Chapter 3)*

**You should be able to define the following terms:**

* Biome
* Solar radiation
* Insolation
* Climate
* Precipitation
* Leaching
* Latitude
* Altitude
* Respiration
* Photosynthesis
* Productivity
* Gross Primary Productivity (GPP)
* Net Primary Productivity (NPP)
* Gross Secondary Productivity (GSP)
* Net Secondary Productivity (NSP)
* Autotroph
* Heterotroph
* Species
* Population
* Ecological niche
* Ecosystem
* Biosphere
* Biotic factors
* Abiotic factors
* Food chain
* Food web
* Trophic level
* Producer
* Consumer
* Herbivore
* Carnivore
* Top carnivore
* Decomposer
* Detritivore
* Pyramid of numbers
* Pyramid of biomass
* Pyramid of productivity
* Bioaccumulation
* Biomagnification
* Intraspecific competition
* Interspecific competition
* Predation
* Predator
* Prey
* Herbivory
* Parasitism
* Mutualism
* Energy flow diagram
* Biogeochemical cycles
* Energy budget
* Energy subsidy

**Questions you should be able to answer:**

1. What are three categories of biotic factors and give an example of each?
2. What organisms do respiration?
3. What is the equation for NPP?
4. What is the chemical equation for photosynthesis?
5. What is a habitat?
6. What is an autotroph—give two examples?
7. Where does biomass come from?
8. What are two categories of abiotic factors? Give me three examples of each category.
9. Why is a mule not a species?
10. Given this information what is the scientific name of the aardvark?

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| Kingdom: | [Animalia](http://en.wikipedia.org/wiki/Animal) |
| Phylum: | [Chordata](http://en.wikipedia.org/wiki/Chordate) |
| *Clade*: | [Synapsida](http://en.wikipedia.org/wiki/Synapsid) |
| Order: | [Therapsida](http://en.wikipedia.org/wiki/Therapsida) |
| Class: | [Mammalia](http://en.wikipedia.org/wiki/Mammal) |
| Superorder: | [Afrotheria](http://en.wikipedia.org/wiki/Afrotheria) |
| Order: | [Tubulidentata](http://en.wikipedia.org/wiki/Orycteropodidae)[Huxley](http://en.wikipedia.org/wiki/Thomas_Henry_Huxley), 1872 |
| Family: | [Orycteropodidae](http://en.wikipedia.org/wiki/Orycteropodidae)[Gray](http://en.wikipedia.org/wiki/John_Edward_Gray), 1821 |
| Genus: | [*Orycteropus*](http://en.wikipedia.org/wiki/Orycteropus)[G. Cuvier](http://en.wikipedia.org/wiki/Georges_Cuvier), 1798 |
| Species: | ***O. afer*** |

1. What are the three parts of the biosphere?
2. What is the difference between a species and a population?
3. What is a ecological niche?
4. What is latitude?
5. What is a heterotroph?
6. Why do we need respiration?
7. What is a limiting factor? Give me an example.
8. What is the chemical equation for respiration?
9. What wavelength of light is the best for photosynthesis? What is the worst?
10. What is an ecological community?
11. What does chlorophyll do for photosynthesis?
12. What are the three main abiotic factors that define an area’s climate?
13. What is P/E ratio?
14. What is insolation?
15. What is the compensation point?
16. How is photosynthesis related to biomass?
17. What is the difference between Gross Primary Productivity and Gross Secondary Productivity?
18. What are the two main factors that determine where a biome is located?
19. How are aquatic biomes different than terrestrial biomes?
20. What is a desert’s latitude?
21. What is a forest’s P/E ratio?
22. What is an example of a temperate grass land?
23. Which biome has the lowest NPP, what is it?
24. What are three abiotic factors that form a tundra biome?
25. Tropical, temperate, or boreal, which forest type has the lowest amount of insolation? Why?
26. How does P/E ratio affect soil?
27. How does the soil affect what biome exist?
28. What are two ways heat gets from the equator to the poles?
29. What is the difference between Gross Primary Productivity and Net Primary Productivity?
30. What does MRS. GREN stand for?
31. What three things determine an area’s terrain?
32. List two kinds of biotic interactions?
33. What is the lithosphere?

**Sources of information:**

* The videos
* The quizzes
* Your IA
* The book (chapter 3)
* The project
* Biome notes
* Practice assignments
* The Mother Earth News article about wolves effect on ecosystems.