Introduction/Ecology Study Guide

What are the 7 steps to the Scientific Method?

1.
2.
3.
4.
5.
6.
7.

What are the 6 Characteristics of Life?

What are the base measurements for *Distance, Weight and Volume*?

Review your stair-step chart, convert the following.

1. 14 km = _____ dm
2. 7569 g = _____ dag
3. 12 mm = _____ hm
4. 362 daL = _____ dL
5. 86 dam = _____ m

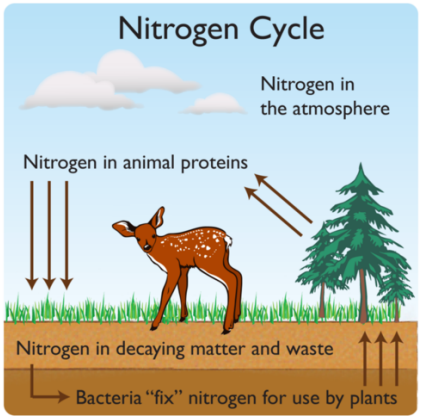
1. Define ecosystem.

2. Define abiotic and biotic.

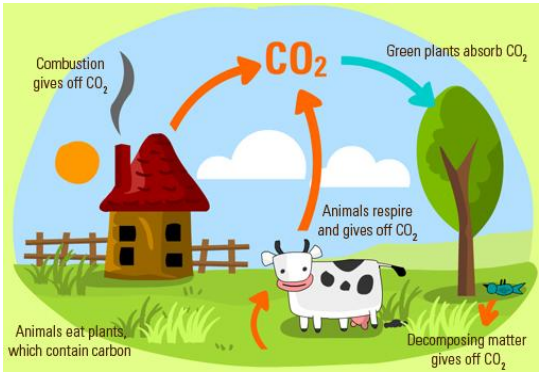
3. Using the picture below, pull out all abiotic and biotic factors you can find.

4. Autotrophs and heterotrophs have a large role in the carbon cycle. How do autotrophs fit into the cycle? Heterotrophs?

5. What is pictured? How is this essential to the Nitrogen Cycle?



6. Briefly outline the steps in the carbon cycle.



7. Explain how human activities, such as burning fossil fuels and deforestation, affect the carbon cycle?

8. Define symbiosis.

9. There are three types of symbiotic relationships. Name and define each.

10. Read the following scenario and answer the questions below:

“The relationship between these the sea anemone and the clownfish has been a much studied topic. As far as is known, the fish is able to produce a special mucus that causes the anemone not to release its stings. It is also believed that the movements of the fish inform the anemone of its identity. In return for the anemone's protection, the fish brings scraps to it, and lures larger fish into the anemone's tentacles.” –source: “A Guide to Seashore Life” by Dr. Leo W H Tan and Peter K L Ng

a) What relationship is the article describing?

b) How do you know?

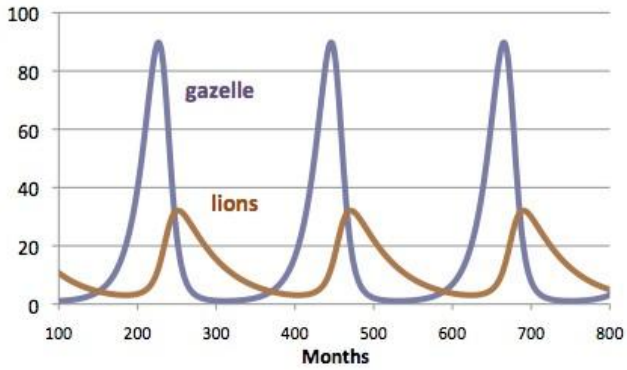
11. There is some debate that commensalism is just early mutualism. Why would scientists wonder this?

12. Define predator.

13. Define prey.

14. Explain competition and give an example.

15. Look at the predator/prey graph below. Answer the questions that follow.



a. During the time when the gazelle population is growing, what do you notice about the lion population? Why is this so?

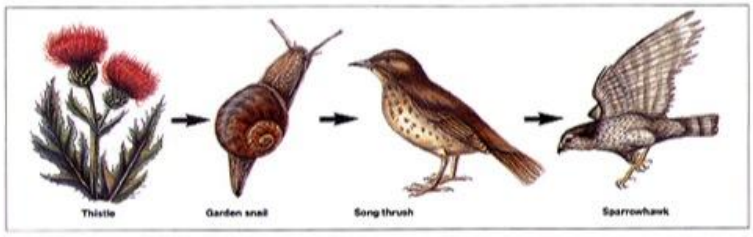
b. What happens to the gazelle population when the lion population grows? Why?

16. What is carrying capacity? Is a carrying capacity graph logistic or exponential? Explain.

17. Define autotroph/producer.

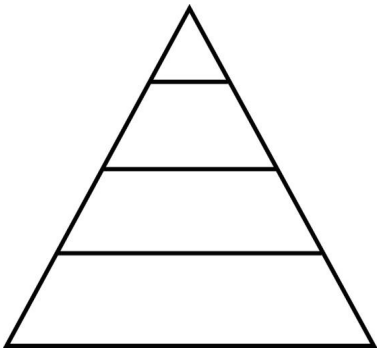
18. Define heterotroph/consumer.
19.

20. Using the food chain below, answer the questions that follow:



a. Label the organisms as producer and consumer (primary, secondary, tertiary…)
b. What is the ultimate energy source for all food chains? Explain this.

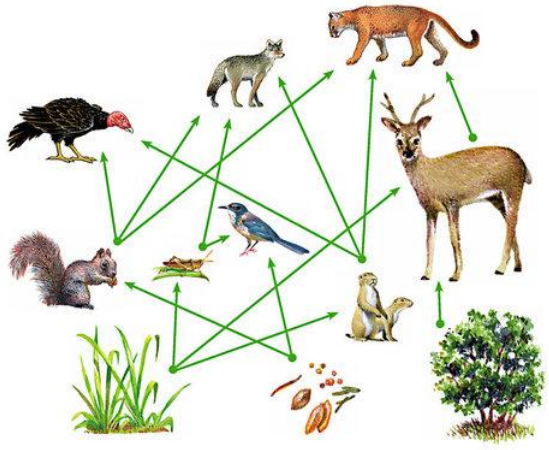
21. Place the food chain into the energy pyramid below.



22. Explain the 10% rule.

23. Although not shown in this web, what role do decomposers play in the food chain?

Shown below is a food web representing an ecosystem. Use it to answer the questions below.



24. How does a food web differ from a food chain?

25. Use the food web above and identify a carnivore, omnivore, and herbivore.

26. Identify at least 2 producers and 3 consumers in the web above.

27. Some animals, like peacocks, put on a show for a potential mate. In the peacocks case, the male will display his intricate feathers for her. What is this behavior called and what is the purpose of it? Provide another example.

28. Provide 3 examples of innate behaviors that we discussed in class.

29. Provide 3 examples of learned behaviors that we discussed in class.

30. Why do animals at the top of the food chain experience stronger effects from bioaccumulation toxins?

31. Why are invasive species a threat to ecosystems?

Ecological Terms	***Definition***
Abiotic Factors	
Adaptation	
Autotroph	
Behavior	
Biodiversity	
Biological Magnification (Bioaccumulation)	
Biotic Factor	
Carrying Capacity	
Carnivore	
Conservation	
Courtship Dance	
Decomposer	
Deforestation	
Ecosystem	
Endangered Species	
Extinct	
Food Chain	
Food Web	

Habitat	
Habituation	
Heterotroph	
Herbivore	
Innate Behavior	
Invasive Species	
Niche	
Omnivore	
Organism	
Photosynthesis	
Learned Behavior	
Logistic Growth	
Nitrogen Fixation	
Respiration	
Symbiosis	
Trophic Level	