Name: \_\_\_\_\_\_\_\_\_KEY\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_

**ECOLOGY STUDY GUIDE**

1. Define *population – group of individuals of same species living in the same habitat*

2. Define *habitat – an environment providing abiotic resources for organisms to live*

3. Define *ecosystem – communities interacting with abiotic factors in environment*

4. What is the difference between primary succession and secondary succession?

*Primary Succession – living organisms populating a habitat where life never existed before (Ex Hawaii)*

*Secondary Succession – living organisms re-populating a habitat that was once destroyed (woods after a fire, or an abandoned parking lot)*

5. Summarize the water cycle.

Condensation Precipitation

Evaporation (surface water) Transpiration (plants and animals)

Surface water Run-off Plant/Animal absorbs

 Groundwater storage

6. Define *population density – amount of individuals in a population in a specific area*

7. Draw the three types of population dispersion.

Clumped Random Uniform

8. Define *carrying capacity* – *amount of individuals a habitat can maintain due to limiting resources*

9. Draw an exponential growth graph: Draw a logistic growth graph:

10. Provide 2 examples of both logistic and exponential growth.

*Logistic Growth:*

1. *Humans*
2. *Dolphins*

*Exponential Growth*

1. *Stinkbugs*
2. *Gypsy Caterpillar moths*

11. Compare/contrast density-dependent factors and density-independent factors and give examples of each.

*Density-dependent factors – limiting factors that only limit population growth when the size of the population exceeds a certain amount. Ex. Food, habitat space*

*Density-independent factors – limiting factors that limit the population no matter how many individuals are in the population. Ex. Natural disasters, disease*

\*Remember the Lion King reference

12. What prevents populations from growing exponentially?

 Limiting Factors

13. Define *keystone predator – a predator species who maintains balance in an ecosystem by limiting other smaller predators. Ex. Lions, beavers*

14. Define *Primary Succession*  and provide an example.

 *Animals and plants populating the Hawaiian Islands after the islands were created from volcanic activity.*

15. Define *Secondary Succession* and provide an example.

 *Animals and plants repopulating an abandon parking lot. There was once a habitat present before humans tore the habitat down to build a parking lot, but once abandoned life will return to the parking lot.*

16. Nearly all energy comes from the \_\_SUN\_\_.

17. What happens from one level of the food chain to the next?

*Amount of useable energy decreases after each food chain level. (This is why food chains never exceed 4 individuals because there would be no useable energy after the 4th consumer)*

*\*Remember donut activity*

18. If you start with 1,000 kcal of energy with the producers, what energy would you have at each level of the food chain?

Producer Primary consumer Secondary Consumer

1,000 kcal \_\_\_100\_\_\_\_ \_\_\_\_\_\_10\_\_\_\_\_\_\_

19. What is the difference between the flow of energy and the flow of chemical nutrients?

Energy flow is how energy moves through living organisms in an ecosystem (Shown in food chains/webs)

Chemical flow is how chemicals (Water, carbon, nitrogen, phosphorus) move through living and nonliving

20. Define *community – different populations of species living and interacting with each other in a habitat*

21. What are the four properties of a community?

1. Diversity

2. Stability

3. Lots of vegetation

4. Trophic Levels

23. Define *niche – the amount of resources an individual uses and contributes to their ecosystem*

24. Define *competitive exclusion – if 2 species have the same niche, needing the same resources, and they compete for the same resources than one specie will out compete the other (the other will die).*

25. What organisms are the main decomposers in a terrestrial ecosystem?

Bacteria and mushrooms

26. Describe a commensalistic relationship. Give an example.

One organism benefits while the other organism is unaffected

EX. Humans (0) and eyelash mites (+)

27. Describe a mutualistic relationship. Give an example.

Both organisms benefit.

EX. Fungi (+) and Legume Plants (+)

 Crocodiles (+) and Birds (+)

28. Describe parasitic relationship. Give an example.

One organism benefits while the other organism is harmed

EX. Humans (-) and tapeworms (+)

29. Think of an aquarium with some goldfish, tetras, snails, and some water plants. Using this situation, answer the following questions:

An example of a population:

List the members of the community: goldfish, tetras, snails, and some water plants

What is the habitat? – the aquarium

List the abiotic components of this ecosystem: water, pebbles

30. Why are food chains limited to 4 (at most) organisms?

After the 4th organism the amount of useable energy isn’t enough to provide any benefit for an additional consumer.

31. Fill out the table below and put a +if the impact is beneficial, - if the impact is harmful, and 0 if there is no impact.

|  |  |  |
| --- | --- | --- |
|  | **Organism 1** | **Organism 2** |
| Commensalism |  + |  0 |
| Parasitism |  + |  - |
| Mutualism |  + |  + |

32. Where did coal and natural gas come from?

Plants

33. What is released when fossil fuels are burned? \_\_Carbon in the form of Pollution\_\_\_\_

34. Food Webs and Food Chains



*Describe if the organism is a producer, herbivore, carnivore, or omnivore.*

Deer – herbivore Berries and flowers - producers

Grasses – producer Grizzly bear - omnivore

Grouse – omnivore Deer - herbivore

Red-tailed hawk - carnivore Marmot – herbivore

*Draw a food chain from the above food web. Label if the organism is a producer, primary, secondary, or tertiary consumer.*

*Sun Grass Rabbit Fox Coyote*