Name: _____ **Period:** _____

BENCHMARK REVIEW WORKSHEET

SC.912.L.17.5 Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.

What do you need to know?

- explain how population size is determined by births, deaths, immigration, emigration and limiting factors
- analyze data about population dynamics, abiotic factors, and biotic factors to explain a change in carrying capacity and population size in an ecosystem
- relate that different types of organisms exist within aquatic systems due to chemistry, geography, light, depth, salinity, and/or temperature
- describe the potential changes in an ecosystem resulting from seasonal variations, climate changes and/or succession (changes to ecosystem not on population changes/responses)
- evaluate the positive or negative consequences that result from a reduction in biodiversity

Key Terms:

- abiotic
- aquatic system
- biodiversity
- biome
- biotic
- births
- deaths
- ecosystem
- emigration
- immigration
- limiting factors
- organism
- population
- salinity
- season
- succession
- temperature

Review Questions:

1. Use the diagram below to answer questions 1 – 5:

2. In the graph below, which organism is the prey? _____ Which is the predator? _____

3. Which population increases (or falls) first and why? _____
   _____

4. Which population increases (or falls) second and why? _____
   _____

5. Why are predator/prey relationships important in an ecosystem? _____
   _____

6. What is carrying capacity? _____

_____

7. Explain the differences between density independent and density dependent limiting factors**.** A disease is a good example of a density-dependent factor. The effect of weather is an example of a density-independent factor.

_____

_____

8. Complete the table by checking the correct column(s) for each limiting factor.

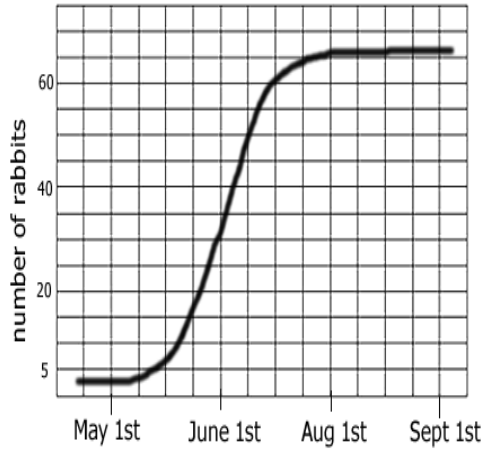
Limiting Factor	Abiotic Factor	Biotic Factor
Temperature		
Rainfall		
Predator		
Soil Chemistry		
Prey		
Plant Nutrients		
Oxygen		
Sunlight		
Climate		
Producers		

9. Give an example of how biotic & abiotic factors act together to limit population growth and affect carrying capacity.

_____

_____

Graph 1: Rabbits Over Time



10. What kind of growth curve is shown by the graph to the right?

_____

11. What is the carrying capacity for rabbits?

_____

12. During what month were rabbits in exponential growth?

_____

13. What is the effect of resources (which are limited) on unlimited human population growth?

_____

_____

14. What factors influence human birth and death rates?

_____

_____

15. What is the name of the above diagram?

_____

16. What percent of the population are female ages 0-4 in the Germany?

_____

17. What percent of the population are male ages 75-79 in Kenya?

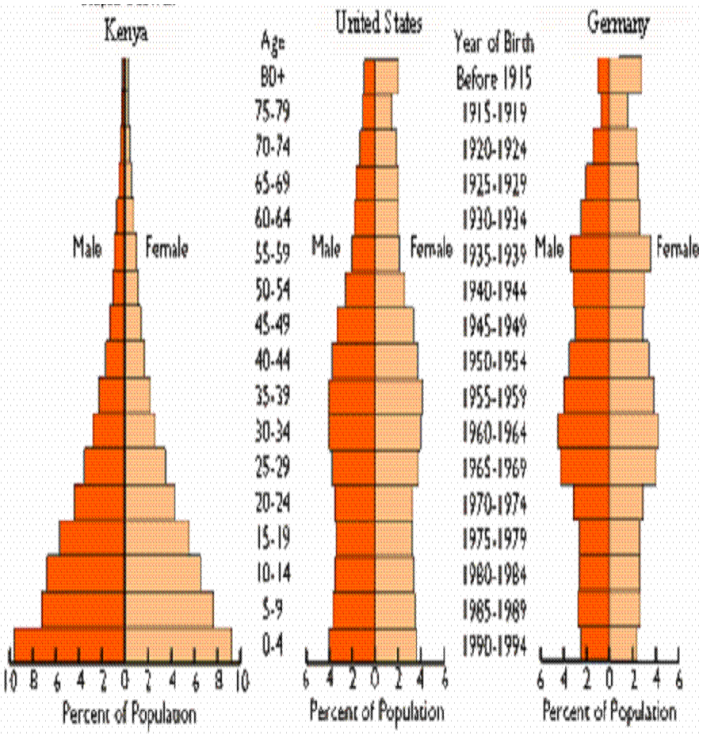
_____

18. Will the population of United States increase or decrease or be stable?

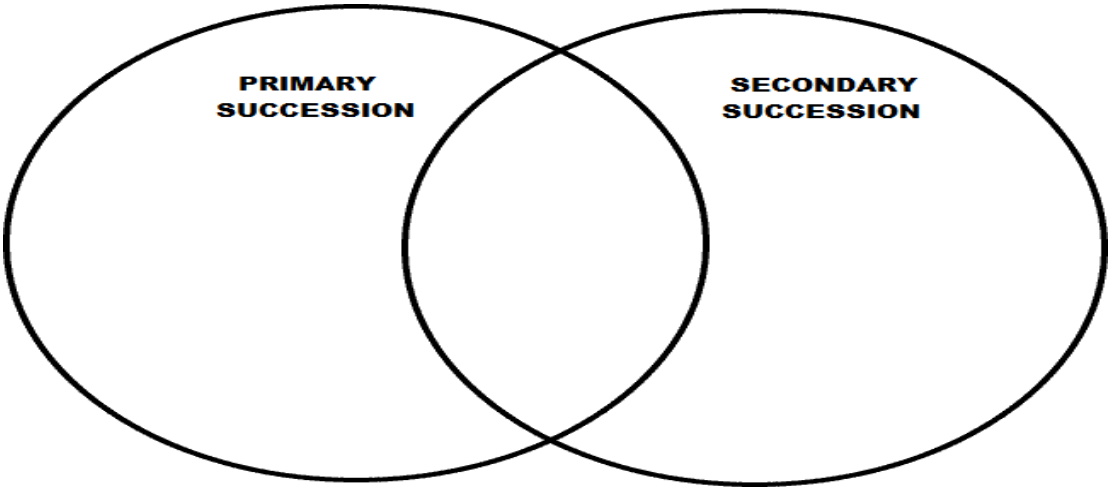
_____

19. What percent of the population are males & females aged 40-44?

_____



20. Use the Venn diagram to compare the two types of ecological succession.



21. Complete the table by explaining how the abiotic factors affect living organisms in an aquatic ecosystem.

Abiotic Factors	Example of Organism	How It's Affected
chemistry		
geography		
light		
depth		
salinity		
temperature		

22. The panels show changes taking place in an ecosystem after a volcano erupts and covers an area with rock and ash. Number each panel in the order that changes occur. Then, under each panel, write a description of the changes taking place.

23. Complete the concept map including specific examples that cause a reduction in biodiversity. Example: an introduction of invasive species results in a decline of the native species it is competing with; such as the python in the Everglades.