1. Which of the following is NOT a feature of a population?
   1. size
   2. density
   3. number of species
   4. distribution
2. The demographic age pyramid of a rapidly growing population is:
   1. wide at the base, narrow at the top
   2. wide at the top, narrow at the bottom
   3. wide at top and bottom, narrow in the middle
   4. similarly wide from top to bottom
3. The movement of individuals in space is called:
   1. distribution
   2. migration
   3. dispersal
   4. density
4. If more individuals move out of a forest than into it every year, the \_\_\_\_\_\_\_\_ rate is high.
   1. immigration
   2. fidelity
   3. emigration
   4. migration
5. Which of the following is a density-independent factor?
   1. weather event
   2. food availability
   3. shelter availability
   4. availability of mates
6. Which of the following factors is most likely to be a density-independent regulator of population growth?
   1. drought
   2. disease
   3. starvation
   4. parasites
7. The carrying capacity refers to the:
   1. minimum amount of resources needed to sustain a finite population with zero population growth.
   2. maximum sustainable population size for the prevailing environment.
   3. minimum number of individuals in a population required to assure reproductive success
   4. maximum growth rate of a population in which resources are unlimited.

TRUE/FALSE

1. Exponential growth is characteristic of populations that inhabit favorable environments at low densities.
2. Exponential population growth does not occur in natural populations.
3. List common mosquito-borne infectious diseases.

Short answer

1. What type of species interaction occurs between the mosquito and humans? Between the mosquito and the illness-causing agent?
2. In what ways can human population growth be influenced by mosquito-borne infectious diseases?
3. What mosquito-borne infectious diseases have occurred in Puerto Rico?
4. What density independent factors likely influence mosquito population growth in Puerto Rico?
5. What density dependent factors likely influence mosquito population growth in Puerto Rico?
6. Summarize the history of malaria in the United States after reading the article “History of Malaria in the U.S.” (Note this article was published in 1951 and contains language that can be considered offensive today).
7. What factors contributed to the decline of malaria in the 1920s and 1930s?
8. What factors contributed to the rise of malaria in the 1920s and 1930s?
9. What technological or scientific advancements are used today to control outbreaks of mosquito-borne infectious diseases? To control mosquito populations themselves?
10. How does birth rates, death rates, immigration, and emmigration influence population size (N)?
11. [Watch the following video:](https://youtu.be/E8dkWQVFAoA)

Are humans r- or k-selected species?

1. What model of population growth (logistic or exponential) is found in humans?
2. How have humans been able to avoid carrying capacity?
3. What year did the human population growth rate peak?
4. Describe causes for the decline in human population growth rate.
5. What is an ecological footprint?
6. Calculate your ecological footprint using the following website: <http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/>

If everyone on Earth lived like you, how many Earth’s would it take to provide enough resources?