

**OVERVIEW:** Although every creature faces death, each belongs to an interbreeding unit called a *population* and has the potential to pass genes to its offspring. Populations are considered as distinct units ecologically, demographically, and genetically. Populations tend to increase logarithmically, but environmental limits tend to bring growth rates into levels compatible with the carrying capacity of the habitat. Natural selection results from the quantitative and qualitative changes that occur as the environment limits population growth.

**STRATEGY:** Read Chapter 7, pages 123-133, with emphasis on VOCABULARY and GOALS below.

**VOCABULARY:** Define each of the following accurately in your own words:

population	biotic potential
niche	limiting factor
habitat	carrying capacity
population growth rate ( $r$ )	territoriality
logarithmic growth	natural selection

**LEARNING GOALS:**

1. Learn to define population. How are populations like definable units within a food web (ecological)? How are they definable numerically (or demographically), and genetically? What is a gene pool?
2. State an equation for determining population growth rate based upon birth, death, and migration rates.
3. How do populations tend to increase? Why are such growth rates seldom sustained?
4. Use a concept map to explain the two major types of “environmental limiting factors.”
5. Sketch the x- and y-axes for a population growth graph, show a population growth curve which begins logarithmically and then levels into a ‘plateau.’ Use the terms in the right column above to explain why this curve became S-shaped (sigmoidal).
6. What are the two major outcomes of the population growth patterns described in Goal #5 above?
7. Define natural selection. Why is it incorrect to define it as simply “survival of the fittest?”

**DISCUSSION QUESTIONS:** Questions #2, and #5 through 8 at the end of Chapter 7

**LECTURE EMPHASIS** will be upon the following topics:

1. Significance of the growing human population
2. Do population biology principles related to animals and plants also apply to humans?
3. Concept of population as viewed from three perspectives--ecology, genetics, and demography
4. Factors influencing population growth
5. Changes in populations as they approach the carrying capacity