

Review: Population Dynamics

1. What is a population?
2. What is population density? How is it determined?
3. What is a common method of estimating population size?
4. a. What type of curve do populations of organisms experience if they could have unlimited resources?

b. What is this type of growth known as? _____
5. What are limiting factors?
6. List a number of factors that can limit population growth
7. What type of growth curve will result due to limiting factors?
8. a. What is carrying capacity?

b. If a population were to have reached its carrying capacity and suddenly there were an influx of more organisms of that species, what would happen?
9. When would limiting factors come into play?
10. What is a life-history pattern?
11. What are the characteristics of R-strategists?
12. What are some examples of organisms that would be R-strategists?
13. What are the characteristics of K-strategists?
14. What are some examples of organisms that would be K-strategists?

15. Describe the 3 types of dispersal methods of organisms.

16. What are density-dependent factors?

17. List 5 density-dependent factors.

18. What are density-independent factors?

19. List 7 density-independent factors.

20. Why can predation be a limiting factor?

21. What is the difference between *intraspecific competition* and *interspecific competition*?

22. What is the *Principle of Competitive Exclusion*?

23. What is a survivorship curve?

Type I

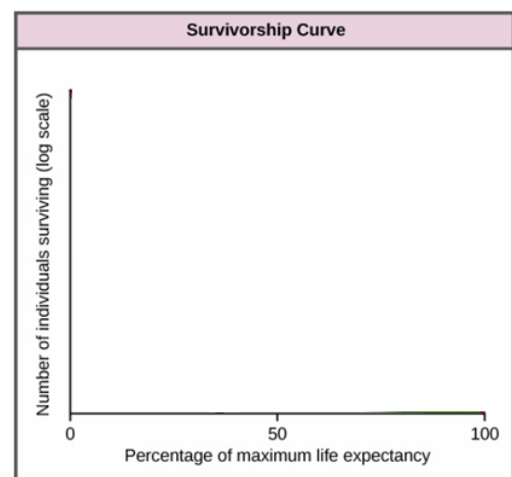
Type II

Type III

24. What is demography?

25. List the 4 factors that affect population **growth rate**.

26. What is the difference between *immigration* and *emigration*?



27. What is the difference between a developed and a developing country?
28. What are the limits of tolerance? Draw a graph as well.
29. Increased population density often leads to what events within that population?
30. What are population pyramids and how are they represented in showing rapid growth, slow growth and negative growth?

Solve the following Population Density problems:

31. There are 4 million people living in Los Angeles. The area of Los Angeles is 400,000 square kilometers. What is the population density of Los Angeles?
32. The area of Chicago is 200,000 square kilometers. The population density is 100 people per square kilometer. What is the population of Chicago?

Estimate the following Population by using the mark-recapture formula:

33. Suppose that you capture 10 individuals of a rare subspecies of brook trout from an impounded watershed. You place a pit tag (a very small radio activated tag) in the body cavity of each individual and then release these fish. You come back a month later and capture 20 fish and find that four of these are individuals that you had previously captured and released. What is your best estimate of the population size?