



High School Science Virtual Learning

**College Biology**  
**Chapter 19 Recap**

May 21, 2020



## High School College Biology

### Lesson: May 21, 2020

#### **Objective/Learning Target:**

Students will be able to discuss how populations grow and what impacts population growth, discuss applications of understanding population ecology and discuss human populations in the context of population ecology.

## Let's Get Started:

1. Calculate the population density of oak trees in a  $50 \text{ km}^2$  forest that contains 200 oak trees.
2. What happens when a population reaches its carrying capacity?

## Answers:

1. 
$$\text{Population Density} = \frac{\text{Number of organisms}}{\text{area}} = \frac{200 \text{ oak trees}}{50 \text{ km}^2} = 4 \text{ oak trees / km}^2$$
2. Enough resources are available to sustain that population size, but the population does not continue to increase.



## Lesson Activity:

1. Read over the Chapter 19 Notes. ([Linked Here](#))
2. Watch this Crash Course video on the [Population Ecology](#).  
Watch these videos on invasive species.  
[Ted-Ed](#)  
[National Geographic](#)  
Watch this Crash Course video on the [Human Populations](#).

## Practice:

1. What can the age structure of a population tell you about that population?
2. When the population reaches its carrying capacity, where will the growth rate be?
3. What are density-independent factors and give some examples.



## Practice Answers:

1. The age structure of a population gave give insight about the history of a population's survival, reproductive success, and how the population relates to environmental factors.
2. When a population reaches its carrying capacity the growth rate will be at zero. Carrying capacity implies that all of the resources and space are spoken for.
3. Density-independent factors are factors that affect population no matter how densely populated the population is. Factors include seasonal changes, floods, fires, and tornadoes.

## More Practice:

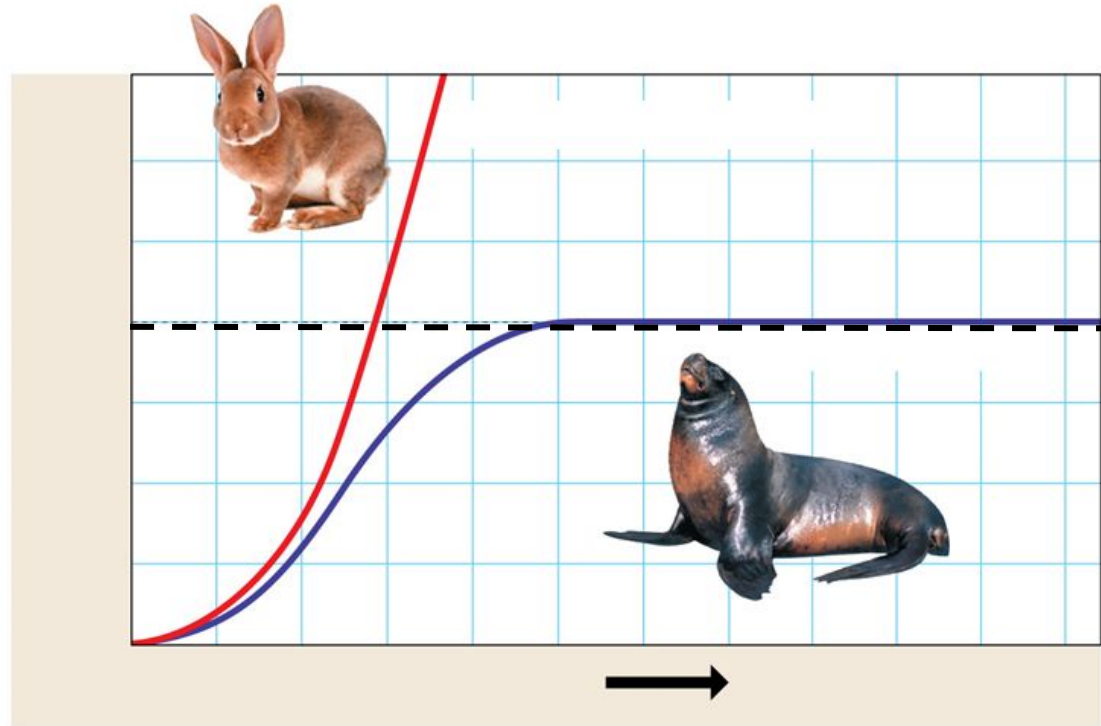
1. If members of a species produce a large number of offspring but provide minimal parental care, then a Type \_\_\_\_ survivorship curve is expected. In contrast, if members of a species produce few offspring and provide them with long-standing care, then a Type \_\_\_\_ survivorship curve is expected.
2. Which life history pattern is typical of invasive species?



## More Practice:

3. What does the dotted line represent?

4. For each graph indicate and explain where population growth is the most rapid.



More Practice:

5. Which of the following describes the effects of a density-dependent limiting factor?

- a. A forest fire kills all the pine trees in a patch of forest.
- b. Early rainfall triggers the explosion of a locust population.
- c. Drought decimates a wheat crop.
- d. Rabbits multiply, and their food supply begins to dwindle.



## More Practice Answers:

1. III; I
2. Opportunistic
3. Carrying capacity
4. In exponential growth, the size of the population increase more and more rapidly. In logistic growth, the population grows fastest when it is about one-half the carrying capacity.
5. D



## Review Tools:

-[Kahoot 1](#)

-[Kahoot 2](#)

-[Kahoot 3](#)

-Mr. Anderson videos about population ecology: [Video 1](#),  
[Video 2](#), [Video 3](#).

-Read this article from [Science Daily](#)