High School Science Virtual Learning

College Biology

April 23, 2020

High School College Biology
Lesson: April 23, 2020

Objective/Learning Target:
Students will be able to discuss applications of understanding population ecology.

Let's Get Started:

1. Sea turtles lay their eggs in nests on sandy beaches. Although a single nest may contain as many as 200 eggs, only a small proportion of the hatchlings survive the journey from the beach to the open ocean. Once sea turtles have matured, however their death rate is low. What type of survivorship do sea turtles exhibit?
2. What happens when a population reaches its carrying capacity?

Answers:

1. Type III
2. Enough resources are available to sustain that population size, but the population does not continue to increase.

Lesson Activity:

1. Read over pages 13-22 of the Chapter 19 Notes. ([Linked Here](#))

1. Watch these videos on invasive species.
   [Ted-Ed](#)
   [National Geographic](#)

Practice:

1. How do we use population ecology for our own benefit as humans?

2. Why do some non-native species flourish and become invasive, while others struggle to survive in their new ecosystems?

3. What are some of the potential drawbacks to using pesticides?

Practice Answers:
1. We use it to increase populations of cash crops, decrease populations of pests, and to save species on the brink of extinction.

2. In order for a species to thrive in a new environment and become invasive the biotic and abiotic factors in that environment must be compatible with the required conditions of the species. In addition to that the species most likely will out-compete similar species for resources and have fewer or perhaps no natural predators.
3. Results in populations immune to the pesticide due to natural selection, impacts predators of pests, can remove pollinators as well which impacts the entire ecosystem.
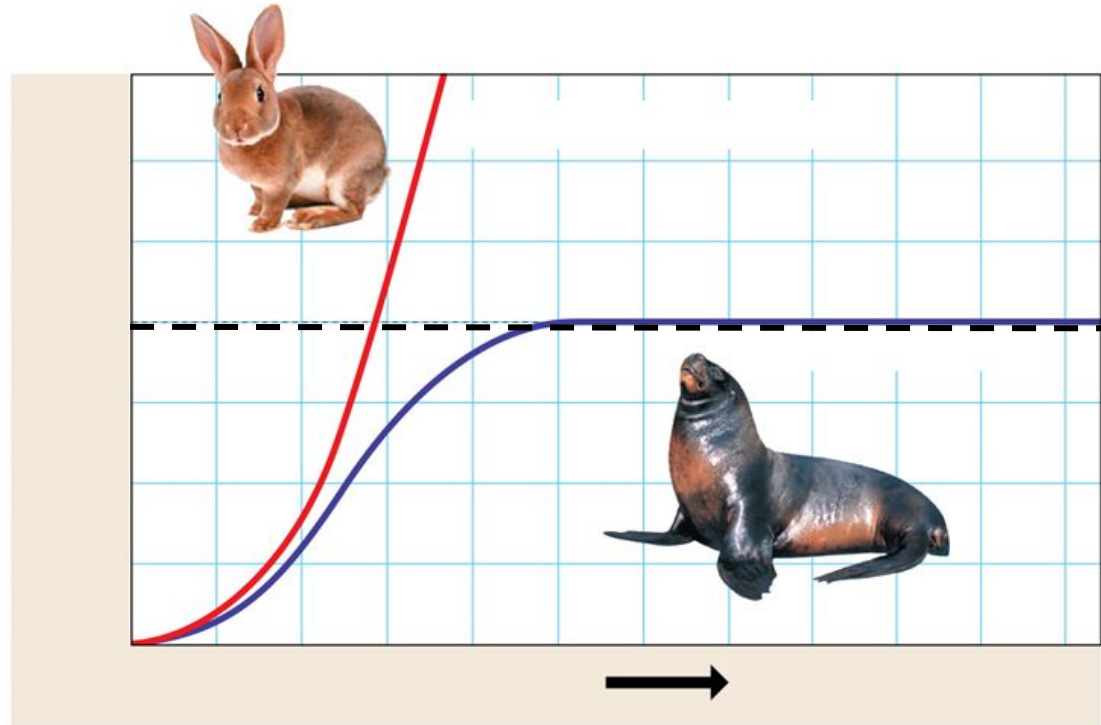
Even More Practice:
Use this graph of the idealized exponential and logistic growth curves to complete the following questions.

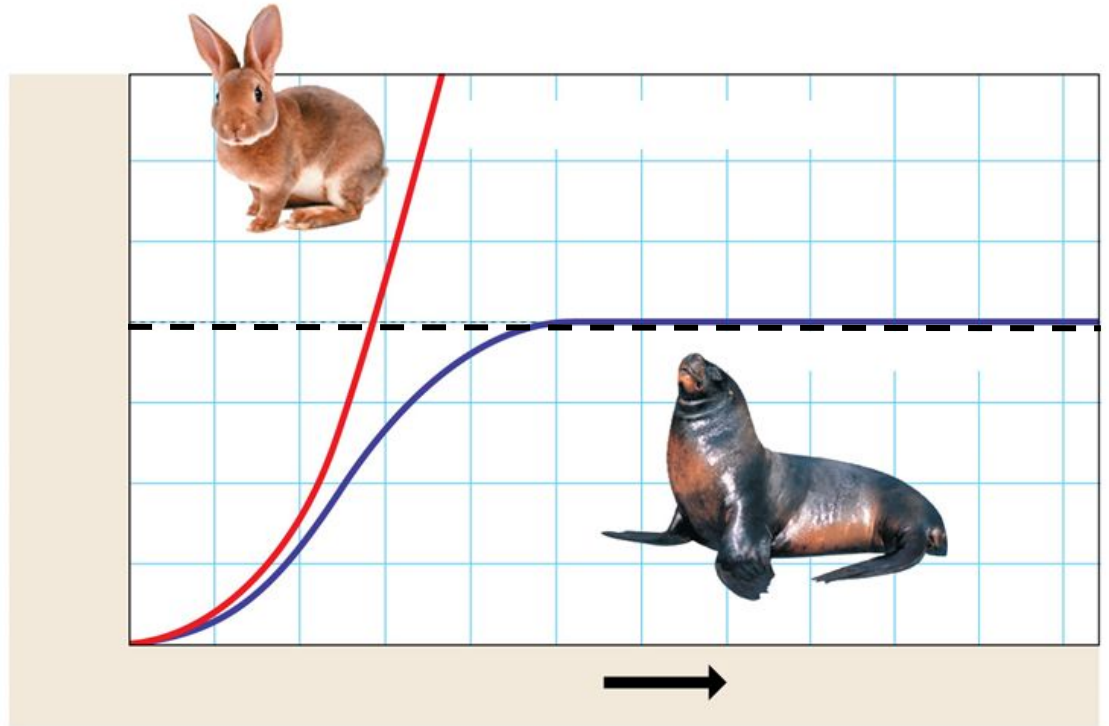1. Label the axes and curves on the graph.
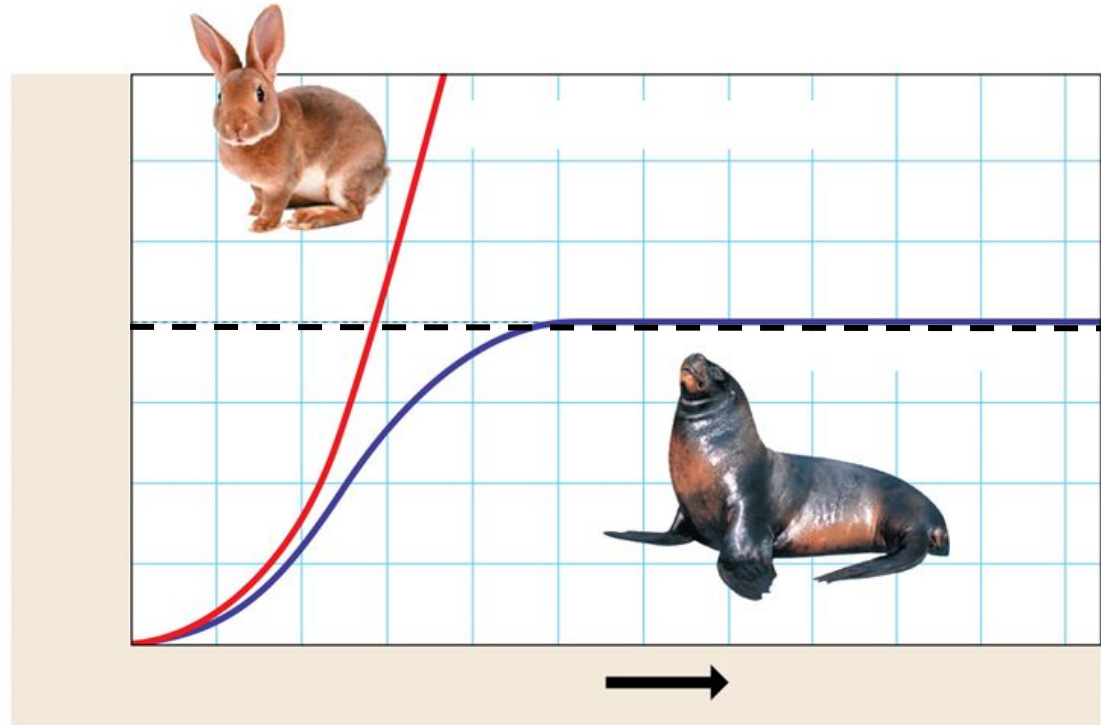
Even More Practice:
2. What does the dotted line represent?

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

Even More Practice:

4. Which of these curves better represents global human population growth?

Even More Practice Answers:
1. The x-axis is time; The y-axis is the number of individuals; the red curve represents exponential growth; the blue curve represents logistic growth.
2. Carrying capacity
3. 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.
4. Exponential growth curve, though the worldwide growth rate is slowing

Review Tools:

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

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