

Population Dynamics

Introduction

A population of deer live in an uninhabited area in Georgia. In this area they have plenty of food, water and shelter. What do you expect to happen to this population over the next several generations? Be as descriptive as possible.

Note: Think population growth, types of population growth curves, limiting factors, etc.

What do you expect to occur if a pair of wolves immigrated into the area?

Note: Consider population growth and limiting factors of both species.



Population Dynamics

Explicit Instruction

The most fundamental necessities for living things are food, water, shelter and appropriate space to live.

There are **limiting factors** that influence a population from growing such as lack of resources, disease, predation and weather conditions.

Hypothesis: As a population reaches its **carrying capacity** it is expected the population will stabilize and fluctuate around an expected population size.



Population Dynamics

Explicit Instruction

Experiment: Students will simulate the interactions between a predator population of gray wolves and a prey population of deer in a forest (Wolf Quest).

1. Define and mark off the area of your forest.
2. Distribute 3 deer cards in the forest to start, and double the number of deer surviving at the end of each round (play smart and spread the deer out).
3. During each round toss one gray wolf card for each wolf in an effort to catch deer. A gray wolf card must land on 1 deer card to survive and 3 deer cards to survive and reproduce. If no wolves survive a new one immigrates to the area.
4. Repeat process for a total of 25 rounds.



Population Dynamics

Guided Practice

Data: Collect data for the experiment over 25 rounds.

Round	Wolves	Wolves Surviving	Wolf Offspring	Deer	Deer Caught	Deer Offspring
1	1			3		
2						
3						
4						
5						
6						
7						
8						
Continue for 25 rounds...						

Population Dynamics Independent Practice

1. Graph the data points for the predator and prey.
2. What did you notice about the deer population as we played the game? Will the results always be the same? Why or why not?
3. What did you notice about the gray wolf population as we played the game? Will the results always be the same? Why or why not?
4. Based upon the data, what can you conclude about the relationship between predators and prey. Support your answer.
5. Think of a modification of the game. What new rule or rules would you write and what limiting factor would it represent? (You must have an answer)

