

Interactions among Predator and Prey

Standards of Learning

Science LS.1, LS.9

Objective

Students will:

- interpret, analyze and evaluate data from an experiment on predator-prey interactions.

Materials

- 200 small squares of card stock paper for each group (represents prey)
- 50 large squares of card stock paper for each group (represents predator)
- data table for each group
- blank graph paper for each group
- set of lab directions for each group

Background Knowledge

In a community, populations interact with other populations by exhibiting a variety of behaviors that aid in the survival of the population. Organisms may coexist, form symbiotic relationships, and be dependent on one another. On the other hand organisms may also compete with one another for food or survival. The battle between organism on the various levels of the food chain is about survival of the species as a whole not just one animal or plant.

Procedure

1. Please clear your lab space as this represents your ecosystem. (Lab tables work best for this activity).
2. Place three prey (small squares) on your table.
3. Toss one predator onto the table (evenly dispersed) and attempt to make the card touch as many "Prey" as possible. In order to survive, the predator must capture at least 3 prey. It will be impossible to survive at this point.
4. Remove any prey capture and record your data for the first generation.
5. The prey population doubles each generation. Count how many prey you have left on your table, double that number and add prey cards to the table. Record the number in the data table under the second generation "number of prey". (It should be twice the number you have under the "prey remaining" for generation 1).
6. Your predator died in round 1, but that's okay, a new predator moves in for the second round. If your predator died, put 1 in "number of predators" for generation 2 to represent the new arrival. Repeat the tossing procedure and record your data for the second generation.
7. Again, number of prey doubles, if your predator didn't capture 3 prey, it died. But a new one moves in for the next round. Keep going, adding to the number of prey each round.



8. Eventually your predator will be able to capture enough prey to survive. Guess what happens? The number of predators will double. Add to your predator population by adding predator cards. Now when you toss your predators, you will be tossing more than one. Don't forget to move "captured" prey.
9. Continue to record the data through 20 generations.
10. Once your data table is complete, construct a graph of your results. On the x-axis, put generations 1 through 20. On the y-axis, you will have the population numbers for each generation (number of predators, number of prey). Use one line for the predator and one line for the prey to graph the data.
11. Write your conclusion about the relationship of predators and preys based on the data that you have gathered.
12. Discussion Questions:
 - What animals could be inserted for the pieces of paper?
 - Do you think the simulation is close to what happens in the wild? Why? Why not?

Generations 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th 13th

Number of
Predators
Number of Prey
Remaining Predators
Remaining Prey

