

Modeling Natural Selection in Predator-Prey Interactions

Materials

Two “habitats”: Foam pad with bumps for “Mountains”, table top for “Prairie”

Three dried beans “prey” types: Garbanzos, soy beans, and lentils

Three utensils “predator” types (having different mouths): Forks, spoons, and knives

10 Participants per round: 9 predators and 1 scorekeeper per habitat

Small paper cups

Scorekeeper data recording sheet

Computer Calculation Program

Methods

*Place 500 of each bean-type “prey” into each “habitat”. Disperse prey evenly within the habitat.

*9 predators, in each habitat, will hunt for two minutes per round. We will start with three forks, three spoons, and three knives. There may be more of one type of predator and less of another in the next round, depending on how successful each type of predator is at hunting.

*Each round will last for two minutes. During this time, each predator must pick up as many prey items as possible and place them into the corresponding cup “stomach”. However, you can ONLY pick up ONE prey item at a time... no scooping to get many prey items at once. Also, do not decide ahead of time that you will only hunt a certain prey type. In the beginning, try hunting all prey and then you can choose to hunt the prey that is most easily caught.

*At the end of 120 seconds, count how many of each prey item is in your cup and give the numbers to the score keeper.

*The scorekeeper keeps track of how many prey items of which type were captured by each predator. Those figures are placed into the computer calculation program. The scorekeeper must consult with the statistician (Ms. Lenz) about how many of each predator and how many of each prey go on to the next round.

*At the end of round 1, approximately five predators in each habitat will switch with five students each, who have not played yet. Then following round two, approximately five students who have played two rounds will switch and allow the students who played round one to come back into the game. In the end, each student will have played two rounds, except for the scorekeeper.

*Add additional beans/utensils as directed by the statistician and repeat for rounds 2, 3, and if time allows, round 4.

*Discuss the results.

Predator-Prey Scoresheet

Round 1	Garbanzos		Soybeans		Lentils	
Spoons		total		total		total
Forks		total		total		total
Knives		total		total		total

Round 2	Garbanzos		Soybeans		Lentils	
Spoons		total		total		total
Forks		total		total		total
Knives		total		total		total

Round 3	Garbanzos		Soybeans		Lentils	
Spoons		total		total		total
Forks		total		total		total
Knives		total		total		total

Round 4	Garbanzos		Soybeans		Lentils	
Spoons		total		total		total
Forks		total		total		total
Knives		total		total		total