Name: _____ Date: _____

Science 10: Community Interactions Lab

Learning Objectives

1. I can define parasitism, predation, competition, mutualism and commensalism.
2. I can identify how interactions between different species in an ecosystem can affect population size and density.

Pre-Lab Questions

1. For each interaction, indicate if species 1 and 2 benefit (+), are harmed (-) or are unaffected (o). Then, write a brief definition of the interaction.

Interaction	Species 1	Species 2	Definition	Example
1. Parasitism 2. Predation				 Tarantula wasps lay eggs inside of tarantulas while they are still alive.
Mutualism				 Bees pollinate flowers.
Competition				 Hyenas and lions both eat the same prey.
Commensalism				 Egret birds eat insects that have been disturbed by cows and horses.

2. A generalist is a species that can eat many different types of food. For example, raccoons eat many things, including garbage. A specialist is a species that eats only specific types of food. For example, koalas only eat eucalyptus plants. Give an example of each.

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Procedure

Each person in your group represents a different species (species A, species B or species C). Each person gets a different stack of cards. Don't let anyone see the instructions on your card, or they will beat you!

1. Put the bowl of M&Ms in the centre of your group. Please don't eat them.
2. Each group member gets a spoon, which will be used to collect M&Ms one at a time.
3. Each group member gets a cup, which must stay on the table (not in your hand). You may not stop people from taking M&Ms from your cup.
4. Each round will last for one minute. There are four rounds in total. At the end of the round, count the number of M&Ms each species collected, record the data, then return the M&Ms to the bowl in the centre.

Data and Analysis

Round 1			
	Species A	Species B	Species C
Number of M&Ms in cup			
Did this species collect enough food to survive the winter?			

1. Which two species occupied the same niche in this community? How do you know?

2. Circle the ecological relationship between:
   a. Species A and Species B mutualism parasitism competition commensalism none
   b. Species A and Species C mutualism parasitism competition commensalism none
   c. Species B and Species C mutualism parasitism competition commensalism none
3. Why will two species not be able to occupy the same niche in an ecosystem for very long?

4. Was your species a generalist or a specialist? Why?

Round 2			
	Species A	Species B	Species C
Number of M&Ms in cup			
Did this species collect enough food to survive the winter?			

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5. Circle the ecological relationship between:
   a. Species A and Species B mutualism parasitism competition commensalism none
   b. Species A and Species C mutualism parasitism competition commensalism none
   c. Species B and Species C mutualism parasitism competition commensalism none
6. Was your species a generalist or a specialist? Why?

Round 3			
	Species A	Species B	Species C
Number of M&Ms in cup			
Did this species collect enough food to survive the winter?			

7. Circle the ecological relationship between:
   a. Species A and Species B mutualism parasitism competition commensalism none
   b. Species A and Species C mutualism parasitism competition commensalism none
   c. Species B and Species C mutualism parasitism competition commensalism none

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Round 4			
	Species A	Species B	Species C
Number of M&Ms in cup			
Did this species collect enough food to survive the winter?			

8. Circle the ecological relationship between:
   a. Species A and Species B mutualism parasitism competition commensalism none
   b. Species A and Species C mutualism parasitism competition commensalism none
   c. Species B and Species C mutualism parasitism competition commensalism none

Discussion

9. If the environment changed suddenly, for example, because of climate change, which do you think would be better able to adapt and avoid extinction: generalist or specialist species? Why?

10. What would happen if a new invasive species that ate blue, red and orange M&Ms, and was better at collecting food that all of the other species?

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11. Give an example of each interaction <u>in which humans are involved</u>:
    a. Competition

    b. Parasitism

    c. Mutualism

    d. Commensalism