Ecological Interactions Activity
Student Handout

The Young Scientist Program - Teaching Kits
http://ysp.wustl.edu
Washington University School of Medicine
Funding provided by The Leon Lowenstein Foundation

Introduction

A niche is _____

_____

Interaction	Species 1	Species 2	Definition	Example
1. Parasitism (parasite lives on or inside of a host) **2. Predation** (predator eats prey) **3. Herbivory** (organism eats a plant species)				 Tarantula wasps lay eggs inside of tarantulas while they're still alive.
Mutualism				 Bees pollinate flowers.
Competition				Hyenas and lions both try to eat the same prey.
Commensalism				Egret birds eat insects that cows & horses disturb.

A **generalist** is a species that can eat many different types of foods. For example, raccoons eat many things, including human garbage!

List another example: _____.

A **specialist** is a species that eats only a certain type of food. For example, koalas only eat eucalyptus plants.

List another example: _____.

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Activity Instructions:

Each person in your group represents a different species (Species A, Species B, and Species C), so each person gets a different stack of cards. Don't let anyone else see the instructions on your card, or they'll have a better chance of beating you!

Put the bowl of M&Ms in the center of your group, and give each group member a spoon. Use the spoon to collect M&Ms—*only one at a time*. Leave your cup on the table, not in your hand. No cup guarding! At the end of the round, count how many M&Ms you collected, fill out the table, and answer the related questions. Then, put all of your M&Ms back into the community bowl for the next round.

Round 1			
	Species A	Species B	Species C
Number of M&Ms in the 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. Which ecological relationship does…
   a) …Species A and Species B have?
      (mutualism / parasitism / competition / commensalism / none)
   b) …Species A and Species C have?
      (mutualism / parasitism / competition / commensalism / none)
   c) …Species B and Species C have?
      (mutualism / parasitism / competition / commensalism / none)

3. Why will two species not be able to occupy the same niche in a community 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 the cup			
Did this species collect enough food to survive the winter?			

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5. Which ecological relationship does…
   a) …Species A and Species B have?
      (mutualism / parasitism / competition / commensalism / none)
   b) …Species A and Species C have?
      (mutualism / parasitism / competition / commensalism / none)
   c) …Species B and Species C have?
      (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 the cup			
Did this species collect enough food to survive the winter?			

7. Which ecological relationship does…
   a) …Species A and Species B have?
      (mutualism / parasitism / competition / commensalism / none)
   b) …Species A and Species C have?
      (mutualism / parasitism / competition / commensalism / none)
   c) …Species B and Species C have?
      (mutualism / parasitism / competition / commensalism / none)

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

8. Which ecological relationship does…
   a) …Species A and Species B have?
      (mutualism / parasitism / competition / commensalism / none)
   b) …Species A and Species C have?
      (mutualism / parasitism / competition / commensalism / none)
   c) …Species B and Species C have?
      (mutualism / parasitism / competition / commensalism / none)

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Elaboration Questions

9. If the environment changed suddenly, for example because of global warming, do you think generalist or specialist species would be better able to adapt and avoid going extinct? Why?

_____

10. What would happen if a new invasive species came into your ecosystem that ate blue, red, and orange M&Ms and was better at collecting food than all three of your species?

_____

11. Using what you have learned about ecological interactions, think an example of each interaction in which humans are involved:

    a. Competition: _____

    b. Parasitism: _____

    c. Mutualism: _____

    d. Commensalism: _____

12. "*All populations living together within a community interact with one another and with their environment in order to survive and maintain a balanced ecosystem*." Do you agree with this statement? Why or why not?