Name: _____

Cannibalism and Competition in the Chesapeake Bay

Introduction:

Ms. Guennouni is studying the blue crab, *Callinectes sapidus*, for her degree and wants to better understand how cannibalism impacts the blue crab population. Blue crabs are opportunistic omnivores which means that they eat everything they can get their claws on, including each other! She thinks that cannibalism is the major driver for the blue crab abundance in Chesapeake Bay and needs you to help her better understand how cannibalism works. Together, let's look at how changes in the number of prey, or the prey density, can impact how much cannibalism occurs in blue crab habitats.

Instructions: Working with a partner, you will act either as a juvenile blue crab prey or adult blue crab predator. Make sure to write down in the chart below which one of you is the predator for high prey density scenario and which one of you is predator for the low prey density scenario.

The first scenario will be our high-density. The predator will collect as many blue crab cutouts as they can during their turn.

The second scenario will be our low-density. When the teacher signals, the two of you will switch roles and again, the predator will collect as many blue crab cutouts as they can.

- Record the number of blue crab cutouts collected in the box below.
- Calculate the percentage of cannibalism that occurred using the number of blue crab cutouts you collected. Use the formula: # of prey (blue crab cutouts) you catch ÷ total number of blue crab cutouts *you could have collected* around the classroom.

Student Name (Predator)	Prey Density	Prey Caught	Total Available Prey	**Cannibalism %** (Blue crab cutouts caught ÷ Total blue crab cutouts) x100

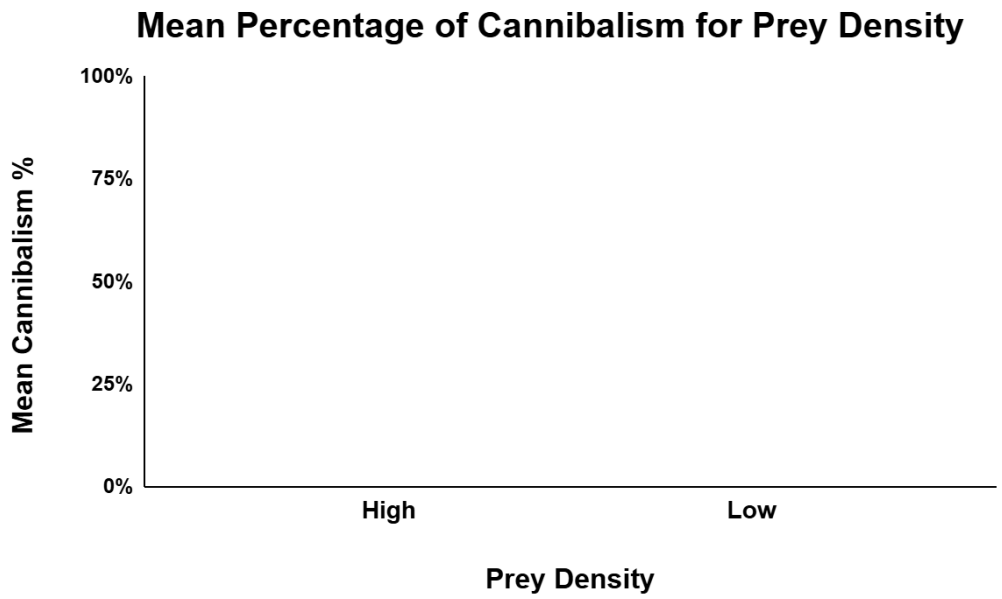
Calculate the MEAN cannibalism % for your class. Use this formula: Sum of Prey Density (low or high) Cannibalism % ÷ Total # of density trials

Mean Cannibalism Rates (Class Data)	
Mean Cannibalism % (High Density)	Mean Cannibalism % (Low Density)

Graph the mean percentage of cannibalism that occurred (cannibalism rate) and answer the questions using the data and your knowledge from the lesson.

Make a bar graph of the Mean Percentage of Cannibalism Occurring for each Density Type.

Name: _____



Questions:
Please answer the following questions using complete sentences.

1. What is one way that prey can avoid predators in their habitat?

2. Why do blue crabs cannibalize each other?

3. Why are models useful?

4. How did prey density affect the percentage of cannibalism?

5. Why do you think it is important for some prey to have refuge? How might that help keep the ecosystem balanced?