

# Virtual Lab: Population Biology

How to get there: ( [http://glencoe.mcgraw-hill.com/sites/dl/free/0078757134/383928/BL\\_04.html](http://glencoe.mcgraw-hill.com/sites/dl/free/0078757134/383928/BL_04.html) ) If you don't want to type that in you can go to the homepage of your textbook site this site OR type "biology mader aris" into google. Once you are there and see the textbook cover (bird and chicks) go to the tab at the top that says "resources". Scroll down to "Chap 46", open that page and click on the link to "Virtual Lab - Population Biology".

Instructions: This lab has instructions on the left hand side and also contains pages to enter data and questions. Due to the trouble we've had in the past with submitting documents and data this way, it is preferable to just turn in a handwritten or typed copy. Print this out for copies, or use the Word Document to type directly into the tables (preferred).

Data Table

	<i>P. aurelia</i> grown alone, cells/mL	<i>P. caudatum</i> grown alone, cells/mL	<i>P. aurelia</i> grown in mixed culture, cells/mL	<i>P. caudatum</i> grown in mixed culture, cells/mL
Day 0				
Day 2				
Day 4				
Day 6				
Day 8				
Day 10				
Day 12				
Day 14				
Day 16				

Journal

1. What are the objectives for this experiment? (you can summarize)

2. Make a hypothesis about how you think the two species of Paramecium will grow alone and how they will grow when they are grown together.

3. Explain how you tested your hypothesis.

4. On what day did the *Paramecium caudatum* population reach the carrying capacity of the environment when it was grown alone? How do you know?

5. On what day did the *Paramecium aurelia* population reach the carrying capacity of the environment? How do you know?

6. Explain the differences in the population growth patterns of the two *Paramecium* species. What does this tell you about how *Paramecium aurelia* uses available resources?

7. Describe what happened when the *Paramecium* populations were mixed in the same test tube. Do the results support the principle of competitive exclusion? (you may need to briefly explain what competitive exclusion is)

8. Explain how this experiment demonstrates that no two species can occupy the same niche.