WLHS/Ecology/Oppelt Name _____

Virtual Lab: Population Biology

How to get there: (http://glencoe.mcgraw-hill.com/sites/dl/free/0078757134/383928/BL_04.html)
Alternately: you can go to the textbook 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 copy.

NOTE: The well in the microscope slide holds 0.5mL. You will need to multiply by 2 the number of cells you counted or estimated in order to obtain the concentration per mL in the table below.

Paramecium Data Table				
	Test Tube 1	*Test Tube 2*	*Test Tube 3*	
Day	*P. aurelia* grown alone, cells/mL	*P. caudatum* grown alone, cells/mL	*P. aurelia* grown in mixed culture, cells/ mL	*P. caudatum* grown in mixed culture, cells/mL
0				
2				
4				
6				
8				
10				
12				
14				
16				

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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. Why was rice placed at the bottom of each test tube (see procedure on side panel)?

(continue on back)

GRAPHING

Using the data from the table above, graph the size of the population of paramecium over the 16 days. On the graph, you will need to have 4 lines (one for each column of data). What to include on your graph:

a. labeled x-axis: days labeled y-axis: size of population (cells/mL)

b. a key defining your lines whether it is by color, shape, etc…

c. a title for your graph.

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?

Using the "Information" button on the computer program, answer the following questions

7. What is a paramecium?

8. What is exponential growth?

9. What is a carrying capacity? When does a population reach this?

10. What is competitive exclusion? (You will need to read the information under the button "Information")

11. Describe what happened when the Paramecium populations were mixed in the same test tube. Do the results support the principle of competitive exclusion?

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