Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Virtual Lab: Population Biology**

How to get there: ( [biol.co/paramec1](http://biol.co/paramec1" \t "_blank) ) Alternately: type virtual lab population biology into google to find the page.

Instructions: This lab has instructions on the left hand side and also contains pages to enter data and questions. Record your results and answers on this worksheet.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data Table | | | | |
|  | *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 |
| 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 competitive exclusion.)

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