**Population Biology Virtual Lab**

Go to the following website:

<http://glencoe.mcgraw-hill.com/sites/dl/free/0078759864/383928/BL_04.html>

Follow the directions in completing the Virtual Lab.

**Data Collection:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *P. aurelia* grown alone, cells/mL | *P. caudatum* grown along, 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 |  |  |  |  |

**Data Presentation Graph:**

**Journal Questions: Please write your responses in a color other than black.**

1. 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.
2. Why are the names of the organisms italicized? What does the P. represent and what does the second name represent? Which language is this written in?
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?
8. Explain how this experiment demonstrates that no two species can occupy the same niche.
9. Compare growth curves for *P. caudatum* in monoculture and in mixed population.
10. Analyze the data to determine which was better adapted to survive in the niche.
11. Distinguish between fundamental and realized niches.
12. Explain the competitive exclusion principle.