

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

## Fish Tank Nitrogen Cycle Data Worksheet (50 points)

| Day | Ammonia (NH <sub>3</sub> ppm) | Nitrite (NO <sub>2</sub> <sup>-</sup> ppm) | Nitrate (NO <sub>3</sub> <sup>-</sup> ppm) |
|-----|-------------------------------|--|--|
| 1   | 0                             | 0  | 0  |
| 2   | 0.5                           | 0  | 0  |
| 3   | 1.3                           | 0  | 0  |
| 4   | 1.3                           | 0  | 0  |
| 5   | 3                             | 0  | 0  |
| 6   | 3.2                           | 0  | 0  |
| 7   | 3.6                           | 0  | 0  |
| 8   | 4                             | 0.27                                       | 0  |
| 9   | 4                             | 1.3  | 0  |
| 10  | 3.4                           | 1.3  | 0  |
| 11  | 3.2                           | 2.89                                       | 0  |
| 12  | 2.2                           | 3.4  | 0  |
| 13  | 1.4                           | 3.7  | 0  |
| 14  | 0                             | 3.7  | 0  |
| 15  | 0                             | 4.3  | 0  |
| 16  | 0                             | 5  | 10   |
| 17  | 0                             | 5  | 13   |
| 18  | 0                             | 5  | 22   |
| 19  | 0                             | 4.2  | 24   |
| 20  | 0                             | 3.78                                       | 27   |
| 21  | 0                             | 3.6  | 42   |
| 22  | 0                             | 3.6  | 50   |
| 23  | 0                             | 2.5  | 53   |
| 24  | 0                             | 1.92                                       | 53   |
| 25  | 0                             | 1.1  | 67   |
| 26  | 0                             | 0.76                                       | 68   |
| 27  | 0                             | 0  | 74   |
| 28  | 0                             | 0  | 80   |
| 29  | 0                             | 0  | 80   |
| 30  | 0                             | 0  | 80   |

**Make 3 graphs on graph paper:**

1. Ammonia over time
2. Nitrite over time
3. Nitrate over time

You may want to visit the following website to help you answer the questions on the following page:

<https://www.thesprucepets.com/nitrogen-cycle-understanding-1380724>

Questions:

1. What is the source of ammonia? (2 point)
2. What is the process that converts ammonia into nitrite? (2 point)
3. What is the process that converts nitrite into nitrate? (2 point)
4. In order to remove the nitrates from the tank (can be toxic to fish at high levels), Mrs. Gburek has to do water changes. Why is this? (2 point)
5. Nitrates get very high during the first month a tank is set up to start the culture of nitrifying bacteria. Why would we not want to add fish to the fish tank during the first 30 days after it has been set up? (2 point)
6. Draw a diagram of the Nitrogen cycle below. Does not have to be fancy! Use your textbook for help! (10 points)