

Name:

STATION 1

Tank _____

* Water Quality Table: PERIOD _____ WEEK OF _____

1. *Test the quality of your group's tank water.*
2. *Enter the levels for your tank in the column next to the Optimal Range column.*
3. *Enter the other groups' findings.*
4. *Compare your findings with the Optimal Range in each category and with the other groups.*
5. *The last column, enter the levels of the tank that you believe has the healthiest water quality.*

| Optimal Range | | Date | | | | |
|---------------|------------|--|------------|------------|------------|------------|
| | Tank _____ | | Tank _____ | Tank _____ | Tank _____ | Tank _____ |
| 60°F - 75°F | | <i>Temperature</i> | | | | |
| 6.5 - 7.5 | | <i>pH</i> | | | | |
| 0 - 0.5 ppm | | <i>Ammonia</i> | | | | |
| 0 - 1.0 ppm | | <i>Nitrite</i> | | | | |
| < 40 ppm | | <i>Nitrate</i> | | | | |
| | | <i>Plant Height</i> | | | | |
| | | <i>Fish Length</i> | | | | |
| | | <i>H₂O Volume and Quality</i> | | | | |
| | | <i>Water Added</i> | | | | |

1. What problem levels did you find with your tank?

2. What do you recommend to fix the problems?

3. Why did you choose the tank that you did as the tank with the healthiest water quality?

4. Did you base your answer to number 3, from the fish perspective or from the plant perspective or from the entire ecosystem perspective? Explain how.

5. How does your tank compare to the other tanks? Explain.

6. Which tank has the healthiest looking plants? Why do you think this is?

Water Quality Parameters Quick Guide

| Water Quality | What is it? | How to Test | Optimal Range | How to Fix |
|--|--|---|---------------------------------------|---|
| Temperature | How hot or cold the water is. | Thermometer | For goldfish, 60° F to 75° F | Turn on/off heater or heat lamp |
| pH | Amount of hydrogen ions in water; acidic or caustic. | pH test kit or test strips. 7 neutral; < 7 is acidic; > 7 is caustic. | 6.5 to 7.5 for fish 6.5 for plants | A pH increase or decrease solution. Wood lowers pH; Shells/coral raise. |
| Ammonia NH₃ / NH₄⁺ | Chemical in fish feces, urine, & respiration. Ammonia is toxic. | Ammonia test kit or test strips | 0 – 0.5 ppm | Clean tank, change ½ tank water; Check/clean filter; Reduce feed amt. |
| Nitrites NO₂⁻ | The breakdown of Ammonia by Nitrosomonas Bacteria become NO ₂ . Nitrites= toxic | Nitrite test kit or test strips | 0 – 1.0 ppm | Change water; Reduce feeding amount; Remove fish. |
| Nitrates NO₃⁻ | The breakdown of Nitrites by Nitrobacter Bacteria become NO ₃ . Plant nutrient | Nitrate test kit or test strips | < 40 ppm, but up to 100 ppm is fine | Change water; Increase fish; Increase feeding; Increase plants. |