Name:

Date:

Class: Earth and Environmental Science

Period:

**TITLE: Evaluating Physical, Chemical and Biological Parameters of Pond Health**

**STATEMENT OF THE PROBLEM/OBJECTIVE:**

Physical, chemical and biological factors were evaluated to determine the overall quality, or health, of the water from the retention pond at Panther Creek High School.

**BACKGROUND/RESEARCH: *Use all of your background questions research to complete the following section in FULL & THOROUGH DETAIL for EACH parameter test.***

Physical factors identified in the lab include \_\_\_\_\_\_\_\_\_\_ *(List ALL factors tested AND describe in full detail EACH test)*. Physical factors of the water *(are studied because/impact other factors of water/etc…)\_\_\_\_\_\_.*

Chemical factors identified in the lab include \_\_\_\_\_\_\_\_\_\_ *(List ALL factors tested AND describe in full detail EACH test)*. *Chemical factors of the water (are studied because/impact other factors of water/etc…)\_\_\_\_\_.*

Biological factors identified in the lab include \_\_\_\_\_\_\_\_\_\_ *(List ALL factors tested AND describe in full detail EACH test)*. *Biological factors of the water (are studied because/impact other factors of water/etc…)\_\_\_\_.*

**HYPOTHESIS:**

The overall health of the water is expected to be ­­­*\_\_\_(good, fair, poor)\_\_\_* because\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**MATERIALS: *List ALL materials used including all materials from the LaMotte: Water Monitoring Kit***

1. Freshwater sample from retention pond
2. *Etc…*

**PROCEDURES: *Write the procedures (in numerical order) of EACH test performed. You may use the yellow test booklet for guidance.***

* **Temperature:**

1. ***Etc…***

* **Turbidity:**

1. ***Etc…***

* **Dissolved Oxygen (D.O.):**

1. ***Etc…***

* **Percent Saturation of Dissolved Oxygen:**

1. ***Etc…***

* **Nitrate:**

1. ***Etc…***

* **pH Test:**

1. ***Etc…***

* **Phosphate:**

1. ***Etc…***

* **Coliform Bacteria:**

1. The coliform bacteria test was performed by the teacher and the results of the test was determined to be *\_\_\_\_\_\_(positive/negative)*.

* **Other Life Forms:**

1. A visual inspection/observation was taken of the freshwater sample and the results of the test was determined to be *\_\_\_\_\_\_(positive/negative)*. *(If positive, list all visible life forms observed in the sample)*

**DATA: *Import all original lab data/results.* *Include ALL appropriate units and ranking number and value.***

|  |  |  |
| --- | --- | --- |
| **Physical Tests** | **Result (Include Units)** | **Ranking (Number AND Value)** |
| Temperature |  |  |
| Turbidity |  |  |

|  |  |  |
| --- | --- | --- |
| **Chemical Tests** | **Result** | **Ranking** |
| Dissolved Oxygen (DO) |  |  |
| Percent Saturation of Dissolved Oxygen |  |  |
| Nitrate |  |  |
| pH |  |  |
| Phosphate |  |  |

|  |  |  |
| --- | --- | --- |
| **Biological Tests** | **Result** | **Ranking** |
| Coliform Bacteria |  |  |
| Other Life |  |  |

**ANALYSIS/CONCLUSIONS: *Summarize ALL observations and data. The conclusion should re-state the problem and provide supporting evidence (data) that either supports or disproves your original hypothesis. Be very DETAILED and THOROUGH.***

The objective of the experiment was to \_\_\_\_\_\_\_\_\_\_\_. The hypothesis predicted that the overall health of the water would be \_\_\_\_\_\_\_\_\_\_. This was ­­­*\_\_\_(supported/refuted)\_\_\_* based on the following data points\_\_\_\_\_\_\_\_\_\_\_\_\_\_. *Explain why each of the data points you referenced support/refute your hypothesis.*

The physical data points showed\_\_\_\_\_\_\_\_, meaning \_\_\_\_\_\_\_. *(Reference what you learned in the background research.)*

*Describe possible sources of sediment in the area that led to your turbidity reading.*

The chemical data points showed\_\_\_\_\_\_\_\_, meaning\_\_\_\_\_\_\_\_. *(Reference what you learned in the background research.)*

*Describe the relationship between the D.O. level and temperature.*

The biological data points showed\_\_\_\_\_\_\_\_, meaning\_\_\_\_\_\_\_\_. *(Reference what you learned in the background research.)*

*Describe the relationship between the life forms you observed and the chemical data collected (nitrates and phosphates)*

**SOURCES OF ERROR: *This section should be detailed and thorough. Include ALL sources of error that could alter lab results.***