And the Winner Is ……..

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Grade Three
Science Type Project

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Abstract:

- The purpose of this investigation was to determine which sample offers the most balanced pH water, making it the most ideal for human consumption. Would it be bottled water or tap water? The hypothesis to be tested states that Nestle Pure Life bottled water would be the most balanced because of the purifying process used, and therefore, the most beneficial for human consumption.
- Ten tap water samples were collected from around my neighborhood, compared and tested for pH levels. Ten samples of three different brands of bottled water were also purchased and tested for pH levels. Data was recorded in logbook and analyzed. The Control sample was snow melt as it is the most naturally occurring water source. Three different methods for testing water pH were used and averaged for a more accurate analysis. The data was collected using pH test papers, a GO Direct Vernier pH probe, and a LaMotte pH chemical field test kit. Protocols for properly administering each test were carefully followed and results written in log book.
- The data did prove the hypothesis, although a much larger sample would have been more supportive.

Introduction:

- We are always talking about water in our house. Got to pay the bill, got to clean the water, got to wash the dishes. It seemed like water was involved in everything around here. Now my family is talking about how healthy and safe the water is or is not.
- Something called pH is really important in helping to decide if the water was healthy and beneficial for we humans.
- Which water sample: bottled, or tap, offers the most balanced pH water, making it the most ideal for human consumption?
- I discovered that pH means there is a division between acidic things and non acidic things. Water is right in the middle and is neutral.
- Everything has a pH level.

Methods:

- The purpose of this investigation was to determine which sample offers the most balanced pH water, making it the most ideal for human consumption.
- Would it be bottled water or tap water?
- The hypothesis to be tested states that Nestle Pure Life bottled water would be the most balanced because of the purifying process used, and therefore, the most beneficial for human consumption.

Methods:

- Ten tap water samples were collected from around my neighborhood, compared and tested for pH levels.
- Ten samples of three different brands of bottled water were also purchased and tested for pH levels. Data was recorded in logbook and analyzed.
- The Control sample was snow melt as it is the most naturally occurring water source.
- Three different methods for testing water pH were used and averaged for a more accurate analysis. The data was collected using pH test papers, a GO Direct Vernier pH probe, and a LaMotte pH chemical field test kit. Protocols for properly administering each test were carefully followed and results written in log book. Pertinent data was uploaded to GLOBE.
- The data did prove the hypothesis, although a much larger sample would have been more supportive.

Results: What did the data show?

Tap Water Test Results

Test Method	Type of Water	Result
pH test strips	Tap water	6.2
Go Direct pH probe	Tap water	6.99
LaMotte Chemical test	Tap water	7.0

Ten trials averaged for final result

Sam's Club Test Results

Test Method	Type of Water	Result
pH test strips	bottled	5.5
Go Direct pH probe	bottled	5.49
LaMotte Chemical test	bottled	5.0

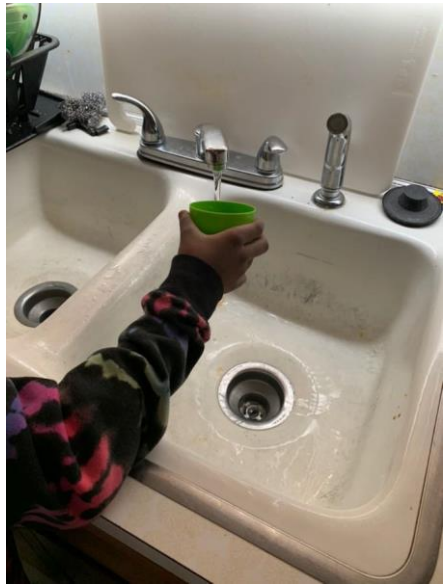
Ten trials averaged for final result

The results were surprising. It was disturbing to see a difference between testing materials on the same samples. It was expected that Nestle Pure Life would produce the most balanced water, but instead, it was the city tap water.

Nestle Pure Life Test Results

Test Method	Type of Water	Result
pH test strips	bottled	6.0
Go Direct pH probe	bottled	5.76
LaMotte Chemical test	bottled	5

Ten trials averaged for final result



Collecting tap water

Results: What did the data show?

Ice Mountain Test Results

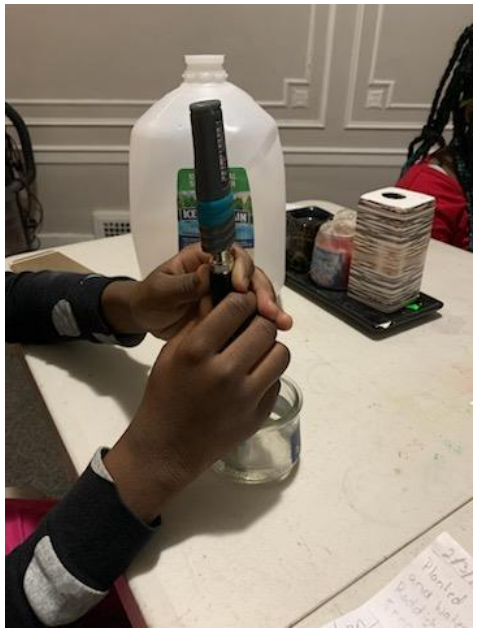
Test Method	Type of Water	Result
pH test strips	bottled	6.6
Go Direct pH probe	bottled	8
LaMotte Chemical test	bottled	8

Ten trials averaged for final result

Control Sample Test Results

Test Method	Type of Water	Result
pH test strips	Snow melt	6.5
Go Direct pH probe	Snow melt	6.95
LaMotte Chemical test	Snow melt	7.0

Ten trials averaged for final result



The results were not what was expected. Instead, the results showed the tap water already in my home to most closely match the control sample and be the closest to the neutral number of 7.

Discussion: How were the results interpreted?

- It was expected that Nestle Pure Life would be that ‘perfect’ one but instead, the city tap water proved to be more beneficial than bottled water for human consumption.
- In two out of three tests, it was either a 7 or barely off of 7 (6.99). The pH value for water is set at neutral and everything else gets their number based on if it is more acidic or more basic than water. Neutral water helps everything it comes into.
- The data did not support the hypothesis.

Conclusion: Limitations and Real-World Experiences

- The samples used were very small and limited to what could be found in the home. Ten trials helped make the data more truthful but it would be better if more samples were tested. There was not enough time to make many different trials.
- There are many people who would be interested in this investigation. Families would want to know if their tap water was better than their bottled water. It would save on their budget if they did not have to buy water twice.
- People who run cities would want to know if their water was healthy for their community. Bottled water makers would want to know if their water was the best.
- Even when my tests would disagree with their test values, it would seem they might want to check things out to see why.

Conclusion:

- In conclusion, it would seem that the data did not support my hypothesis. The product stated it was the most beneficial for human consumption and it was purified to be neutral. The ‘perfect’ number is 7.
- Evidence shows my hypothesis was not supported but the results point to a need for more study and research on this topic. Different tests could also be done, more samples could be tested, and many other ideas added.
- Further study is necessary to determine if there would be any change in the data supporting the hypothesis.

References/Works Cited:

www.globe.gov

www.usgs.gov

Earth Force Green Water Monitoring Manual 11th Ed (Mitchell and Stapp)

Bottled water vs. tap water: Pros and cons (medicalnewstoday.com)