

The title of my GLOBE research project is “How does the environment affect the quality of water?” The purpose of this experiment is to see how different environments affect the quality of water. Seeing what environments have the best water quality can show you what the optimum place to get clean water is. After collecting water from four different locations, tap water from my house, filtered water, hose water, and water from the school fountain, I used a water testing kit to test the levels of PH, ammonia, nitrite, and nitrate. After testing all the samples and using the information from the research, the best quality water is filtered water.

The method I used for this experiment were chemical testing. The testing kit I used was the API Freshwater Master Test Kit which includes testing for PH, high PH, ammonia, nitrite and nitrate. I collected four different samples of water which included tap, filtered, hose, and school fountain water. After separating the water samples into 5 milliliter bottles and labeling them, I tested each for PH, ammonia, nitrite and nitrate. After comparing the samples to the matching color chart, I wrote down the data.

This study is to see what water has the best quality due to its environment. This study will be taking place in Mrs. Nugent's science classroom where the water testing and data collecting will be done. The samples will be collected from Nathan Bishop Middle School and my home. Out of the four water samples, (Tap, Filtered, Hose, and Fountain) I believe that the water with the best quality will be filtered. I think that the filtered water will have the best results because it will have all the impurities filtered out which will lead to cleaner water. The other water samples will still contain those impurities making it a lesser quality.

All four water samples had the same results of both nitrite and nitrate, 0 ppm (parts per million), which means the water is extremely clean. Levels of nitrate between 0 - 40 ppm is safe and the safe level of nitrite is 0 ppm. The ammonia levels of each sample were tap water: 0.50 ppm, filtered water: 0 ppm, hose water: 0.25 ppm, and school fountain water: 0.25 ppm. The drinking water standards for ammonia are 0.25 to 32.5 mg/l (ppm) but the best levels of ammonia are 0. Lastly, the levels of PH for each water sample were, tap: 7.6, filtered: 7.0, hose: 8.0, and school fountain: 7.6. According to WebMD, the best levels of PH in water is between 6.5 and 8.5 although a PH level of 7 is considered neutral. A ph level of 6.5 or less is considered acidic and a ph level with 7 or greater is considered alkaline water.

After comparing my hypothesis with the data results, it showed that the cleanest and highest quality water was the filtered water. I expected this because filtered water does not have the impurities that the other water samples would have had. The worst quality water was the hose water. I believe it was the worst quality water because there are lead pipes connecting to the stream of water from the hose, which can put all sorts of impurities into the water. The school fountain water sample has almost the same as the tap water sample in both ammonia and pH which I found interesting.

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- Peter Garik (PhD) Boston University
- Mrs. Nugent (7th grade Science)
- Water Quality Association
- WebMD
- CDC.gov