

PFAS Chemicals in School Water

New Mexico

Supercomputing Challenge

Final Report

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Capital High School

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Executive Summary

This project investigates PFAS chemicals, also called “forever chemicals,” in the water at Capital High School. PFAS are found in products like non-stick cookware, food packaging, and stain-resistant fabrics. They do not break down easily in water or the human body and can cause health problems. Some of our school water fountains have filters, and some do not. This project tested water from fountains with and without filters to compare PFAS levels. The results show that

Statement of the Problem

PFAS chemicals can accumulate in drinking water and harm human health. Long-term exposure can cause liver damage, thyroid problems, weakened immunity, and cancer. At Capital High, some water fountains have filters while others do not. We investigated the question: *Do filters reduce PFAS levels, and is the school water safe to drink?* Testing fountains is important to identify risks and protect students.

Method

1. Collected water samples from fountains with filters and without filters at Capital High.
2. Tested each sample for PFAS using a PFAS filter testing kit.
3. Measured PFAS levels before and after filtering (where filters were present).
4. Recorded results in tables
5. Reviewed scientific studies and water safety standards to validate our approach.

Validation of the model

To verify my model, I checked that the outputs were consistent across multiple runs and that the code executed without errors. I also compared the results with expected patterns based on the purpose of the project. To validate the model, I ensured that the inputs and parameters were correctly implemented and that the results were reasonable for the problem being studied.

Results of the studies.

The results of my study showed that the school's water is not entirely clean; on the contrary, its drinking fountains do not even have filters to purify it. The data revealed patterns that helped me better understand the behavior of the system I was analyzing. In general terms, the results provided useful information on how chemicals can be present even in the water we drink daily without us knowing it.

Conclusion

Based on my results, I concluded that not all sources of drinking water contain water suitable for consumption. These findings suggest that even filtered water may contain chemicals harmful to health. This supports the idea that water which should be potable does not meet sanitary requirements.

References

For this project, I used Netlogo and spread sheets. I also used class materials and online resources to guide my work. The data collected during the experiment was organized and analyzed to support my conclusions.

Achievement on the project

My most significant achievement in this project was completing the experiment and learning how to apply computational methods to analyze data. This experience helped me improve my problem-solving skills and understand how technology can be used to study real-world problems.

Acknowledgment

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