

Students' toxin research shows public health benefits of citizen science

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Long-term exposure to arsenic, a hidden danger in many New England drinking water supplies, poses serious health risks, including cancer and cognitive challenges. A citizen science initiative called "[All About](#)

[Arsenic](#)" has emerged in response, empowering students and communities to tackle such health threats head-on.

The benefits are detailed in a [article](#) published in the journal *Environmental Health Perspectives*. An accompanying commentary by researchers at Columbia University's Mailman School of Public Health calls the effort a blueprint for federal investments that can leverage youth engagement to advance "water justice."

Launched in 2016 by Jane Disney, Ph.D., and her team at MDI Biological Laboratory's Community Environmental Health Laboratory, the "All About Arsenic" program works with [secondary school teachers](#), students, and scientist partners in Maine and New Hampshire to address drinking water issues related to private water sources.

The initiative turns students into [citizen scientists](#) who collect well water samples for analysis of [arsenic](#) and other toxic metals and not only boosts awareness but also drives action to protect public health.

The program grew to include 27 schools over the study period, with students analyzing more than 3,000 [water samples](#). The findings are concerning: 752 (nearly 25% of samples) revealed [arsenic levels](#) exceeding five parts per billion, the maximum contaminant level set by New Hampshire. In one extreme case, a sample collected by a Maine student registered a staggering 718 ppb, far above the U.S. standard for municipal water.

"Our research highlighted that many residents are unaware of the risks or haven't tested their [water supplies](#)," says Dr. Disney. "By involving students, we not only increase awareness but also empower them to drive policy changes that safeguard their communities."

The program's impact is multi-faceted, leading to increased water-testing

rates, improved data literacy, direct risk mitigation, and more robust toxin databases. In a significant public health victory, students' testimonies contributed to the passage of legislation in Maine that enables the state housing authority to provide remediation grants for low-income households with contaminated wells.

"The power of citizen science in schools is clear," Disney adds. "Students and teachers can be catalysts for change, driving policy and contributing to improved public health outcomes."

The project not only boosts awareness but also drives action to protect [public health](#).

More information: A Mixed Method Approach to Understanding the Public Health Impact of a School- Based Citizen Science Program to Reduce Arsenic in Private Well Water., *Environmental Health Perspectives* (2024). [DOI: 10.1289/EHP13421](https://doi.org/10.1289/EHP13421).
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