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Air pollution may be invisible, but its impact is deeply felt—especially by the communities most often overlooked. PM 2.5, fine particulate matter, is a pollutant so tiny it can slip past our body's defenses and enter deep into our lungs and bloodstream - causing everything from asthma to premature death. My project, *Every Breath Counts*, was built to spotlight this environmental justice issue in Washington State.

I created this project to show that PM2.5 is not just an environmental problem—but a human problem. When creating my project, I first began by researching air quality data across Washington State. From there, I narrowed my focus to PM2.5 due to its grave health implications and how unevenly it affects different communities. I created data visuals and maps comparing cities with high and low PM2.5 concentrations to illustrate the unequal burden of exposure across the state.

The disparities I discovered were eyeopening. For instance, the difference between cities like Bainbridge Island and Tacoma was particularly striking. Some communities consistently breathe cleaner air, while others (often with more BIPOC residents and lower incomes) live next to highways, factories, or wildfire-prone areas. This isn't random. It's the result of decades of systemic neglect and racist urban planning. My intended audience was Washington residents - particularly students and young adults who may not realize how closely environmental justice is tied with equity and health.

In building this project, I drew inspiration from multiple sources: conversations with science teachers, readings on environmental justice from the EPA, and reports from local media including *The Seattle Times* and the World Health Organization. However, building the actual project was done completely independently and I did not receive external support.

One of the biggest challenges I faced throughout the process was in attempting to frame such a data-heavy topic about air pollution into an accessible format for a general audience. It was difficult to communicate the facts without overwhelming my viewers, and I had to find a balance between being informative and being engaging. Another major barrier was identifying and accessing accurate, location-specific data for Washington cities. Since the WTN map didn’t include general average PM2.5 values per region, it made it difficult to create a clean comparison. Lastly, narrowing down the environmental justice aspects into a single slide while giving the topic the weight it deserves was a challenge in itself.

One major lesson I learned is that science communication is not just about information—it’s about framing your topic in a way that resonates with people. You can have all the data in the world, but if people don’t feel the injustice or see themselves in the issue, they’re less likely to act. By tying the health consequences of PM2.5 to systemic inequality, I hope to give people not just knowledge, but also motivation to care.

The equity impact of this project lies in its potential to raise awareness in communities that might not otherwise see the full picture. By pushing this message to schools, community newsletters or online forums, it may hopefully inspire grassroots advocacy for cleaner air as well as better policy.

The health impact is enormous—PM2.5 exposure leads to more than 4 million deaths annually worldwide (World Health Organization). In Washington, it contributes to asthma, strokes, and shortened lifespans.

But by educating the public, I believe this project can contribute to change, both in mindset and eventually in policy.

Looking ahead, I think this project is key to connecting the dots between pollution, health, and justice. In the future, I hope to expand on this work by collaborating with local organizations, schools, and policymakers to push for tangible changes, such as improved air quality monitoring or stronger policies protecting vulnerable communities. *Every Breath Counts* serves as a reminder that clean air should be a right, not a privilege - and through education and advocacy, I hope to make this a reality.

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