Boise Air Quality: Assessing Health Risks at Elementary Schools
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Background: The goal of this project is to conduct preliminary research about the air quality around Elementary Schools in the Boise area. Currently in Boise, air quality is monitored by two stationary sensors, which may not accurately represent localized air quality. We researched portable sensors because they allow for feasible testing of specific areas that are not directly measured by the fixed sensors. The four air pollutants that are of highest concern are Carbon Monoxide (CO), Nitrogen Oxides (NOₓ), Sulfur Oxides (SOₓ), and Particulate Matter (PM).

Where and Why: We chose 16 Elementary Schools, four schools from each sub-district based on population size. Schools are a sensitive population because children breathe 50% more air per pound than adults. Schools are high traffic zones due to cars and busses; exhaust from these sources can cause or worsen: asthma, allergies, heart and lung disease, and cancer.

Conclusion: To continue this project portable sensors will need to be purchased. Portable sensors are more conducive to sensing smaller local detections and able to be moved to the different schools. This will allow for comparison between schools.

Portable Air Sensor Suggestions:

- **Bacharach 0019-8117 Monitor Plus Kit**
  - Measures levels of CO between 0-2,000 ppm
  - Operates between -5 to 45 °C
  - Water and shock resistant
  - Optional NOx sensor attachment
  - Price-$495

- **BW Technologies GasAlert Extreme Single Gas Monitors**
  - Each unit tests a single pollutant
  - Operates between -20 to 50 °C
  - Water and shock resistant
  - Price-$275-$735

- **Aeroqual series 200**
  - Can buy multiple sensor heads that measure different pollutants
  - Operates between -5 to 45 °C
  - Extra cost-$10-150 per head (Carbon Monoxide, VOC, etc.)
  - Price-$715