



ASCEND

A SCHOOL CULTIVATING EXCELLENCE AND NURTURING DIVERSITY

# Lead Poisoning in Oakland

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### Abstract

Our objective was to figure out how much lead pollution there is in different neighborhoods of Oakland. We wanted to see if it was true that lower income communities had more lead in their water or soil, than richer communities.

The way we got all of our information was collected soil samples. We made sure to visit both low income and high income communities. At our school we tested the soil samples for lead levels using a chemical indicator solution that showed us how much lead was in certain areas.

We got more positives for lead than we had predicted. It turned out that our hypothesis was correct and lower income communities did have a lot more lead than higher income communities. However, we did find lead in parks all over Oakland even the ones with higher income residents.

### Research Question

Our research topic is whether parks all around Oakland are safe for children to play. We are interested in this topic because some people in our group actually have experienced seeing people we care about getting harmed by lead. We are investigating the soil (pedosphere) because we want to make sure that parks are safe for kids of all ages to play. Our research question is, Is there a lead or pH problem at Oakland parks?

### Hypothesis

Our hypothesis to this question is that lead pollution is a problem because there are always people and kids constantly passing by and playing in the playground and that could spread lead a lot.

### Investigation Plan

We had multiple study sites. We are investigating parks all over Oakland.

Parks we sampled:

- Dimond Park
- Barry Place
- Lowell Park
- Leona Heights Park
- Wood Park
- Josie de la Cruz Park
- Fairlyland at Lake Merritt
- Snow Park

The GLOBE Protocol we used is Pedosphere, and we used that protocol to test for the pH of our soil samples.

### Research Methods

As a class, we visited parks in different areas of Oakland. We were trying to get a representative sample of different Oakland neighborhoods.

At each location we visited, we took samples of soil to bring back to class to test for pH and lead levels. We collected all of our samples on the same day. We tested our samples with a lead indicator kit.

We used the GLOBE Pedosphere protocol for collecting our soil samples, and testing for the pH of the soil we sampled. We used pH paper and a pH meter to test for the pH of the soil.

#### Field Photos



#### GLOBE BADGE:

#### Community Impact

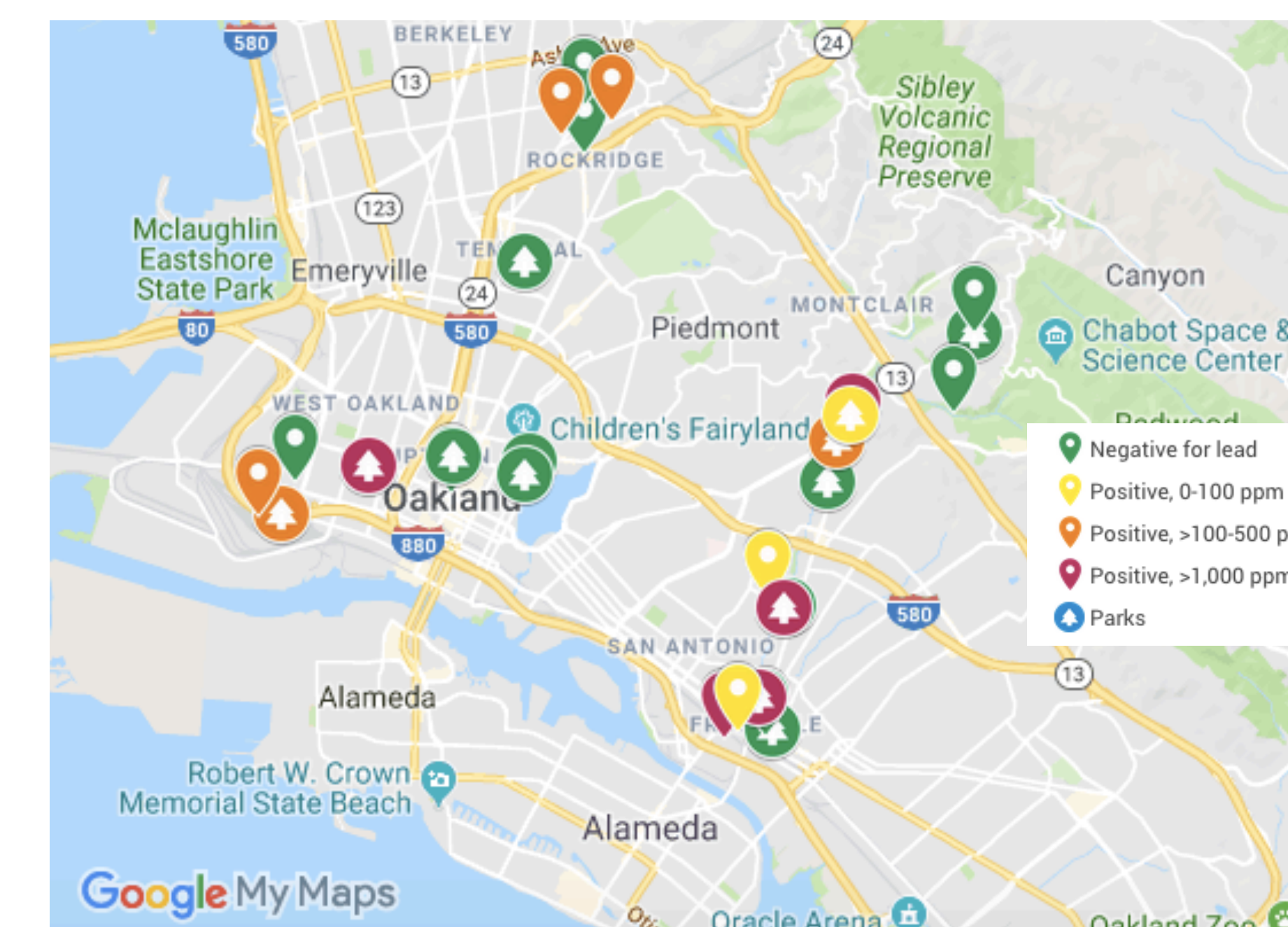
I chose to research lead pollution because my baby brother has been affected by lead and I just felt helpless not knowing what to do and he was always crying and in pain. I decided to join a group of people that also want to do something about lead pollution in Oakland. It makes me feel a lot better knowing what to do and knowing that this might change the future and make it better for my younger siblings.

This connects to the community where I live because our school and the places we go are almost all part of Fruitvale and that was where the highest amount of lead was found. We used that data to inform other schools about the dangers of lead poisoning and how to avoid being lead poisoned. I think this was a good idea we came up with because the schools we visited seemed to be really into it and are trying their best to make a change. The impact that we make is an action kind of steps where we want them to go home or go in their communities and try to make a change.

### GLOBE Data

Location #	Neighborhood	Description of sampling location	Lead Result	Concentration of Lead (ppm)	pH paper	pH meter
1	Dimond	Near Playground, sand area	Negative	0	7	7.07
2	Dimond	Next to bathroom near playground	Positive	200	8	7.52
3	Dimond	Next to creek, close to playground	Positive	1,000	6	6.05
4	Dimond	Near sidewalk and benches	Positive	10	5	5.66
11	Barry Place	Near building sidewalk and fence	Negative	0	7	6.43
12	Barry Place	Patch of grass/soil by the sidewalk	Positive	1,000	6	5.54
18	West Oakland	Lowell Park	Positive	1,000	6	6.16
20	West Oakland	In a park by the freeway	Positive	500	6.5	6.46
21	Wood Park	Park with lots of leaves on ground	Negative	0	7	6.46
25	Oakland Hills	From soil by a river, Leona Heights Park	Negative	0	7	6.51
27	Oakland Hills	In a park around lots of trees	Negative	0	6	6.53
30	Fruitvale	Josie de la Cruz park, playground	Positive	2500	6	5.65
34	Downtown	19th street, near a grass area at Snow Park	Negative	0	7	6.94
35	Lake Merritt	Near Fairlyland	Negative	0	7	7.76
36	Lake Merritt	Soil from right in front of the lake	Negative	0	6	5.19

The data table above shows the location of parks around Oakland with the amount of lead it had, which is represented by ppm (parts per million).



Map of our Locations

### Data Summary



Graph of our Results

### Data Analysis

Our lead graph shows that six out of the ten playground areas we sampled tested positive for lead contamination. Parks in these neighborhoods tested positive: Dimond, West Oakland, Fruitvale. Samples from Lake Merritt, Oakland Hills, and one of the samples from Dimond Park were negative. The graph indicates that the Fruitvale community has the highest amount of lead in its parks compared to other Oakland communities. This is important due to the fact that a lot of young kids play at parks. Oakland is also experiencing high amounts of lead in older homes and this means that children are being exposed to lead through two sources, thereby increasing their risks of developing lead poisoning which then leads to further health risks.

The range of pH in parks' soil was 5-8. The lowest pH was from Dimond Park with a pH of 5. The highest pH was also in Dimond park with a pH of 8.

### Conclusions

In conclusion our research shows that a lot of parks that people often go to have lead in them. We were able to come to this conclusion by visiting parks all over Oakland and testing the dirt for lead and a lot of them tested positive for lead, for example the park with the highest lead amount (ppm) was in Fruitvale with a lead amount of 2500 ppm. One thing that could improve lead in parks is try to repaint homes near parks to prevent lead from getting in the park in the first place, and keep testing for lead in parks often.

### Next Steps

We think the city of Oakland should regularly test the parks for lead, and we want to keep teaching little kids and their parents about what they can do to stay safe. Simple things could have very big impacts like getting your house lead tested could assure you that you and whoever else is living with you is safe. And taking off your shoes before entering the house can also affect how much lead is in your house because doing that can stop lead from entering your house in the first place because it is in a lot more things than people would think.

### Bibliography

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