

Abstract

Five experiments were conducted in order to analyze the standard of living in Brownsville, Brooklyn. In these experiments we analyzed the quality of air that we breathe, the water that we drink, the food we eat, as well as the crime rates and disease statistics. We found that the water in Brownsville is safe to drink, however, the air quality in Brownsville is poor and appears to be related to the amount of asthma, lung cancer and other respiratory illnesses. In addition, we found that healthy food is hardly available but the fast food restaurants are highly prevalent in the area. We found that while most people are aware of the risks associated with eating fast foods, they still consume it at least once a week. As a matter of fact, majority of illnesses that were reported to us are food related. Finally, we found that while the crime rates are decreasing over the years, most Brownsville residents still do not feel safe .



In order to better educate our community we gave out multiple flyers with information on disease prevention, healthy eating habits and crime prevention. We are hoping that with these steps we will continuously be able to make a difference.



Experiment 1: AIR QUALITY

Our goal in this project was to find out how healthy the air is in Brownsville. We tested for fine particulate matter, CO₂, CO, SO₂, and ozone. We placed strips of tape to collect fine particulate matter, and used Ozone-test kits and other test kits to find Ozone, CO₂, CO, and SO₂. There was either no ozone or too little to be detected by the test kit. We did find high levels of CO in our classrooms and fine particulate matter in Brownsville. Overall, the air in Brownsville is polluted and is probably affecting people’s health.

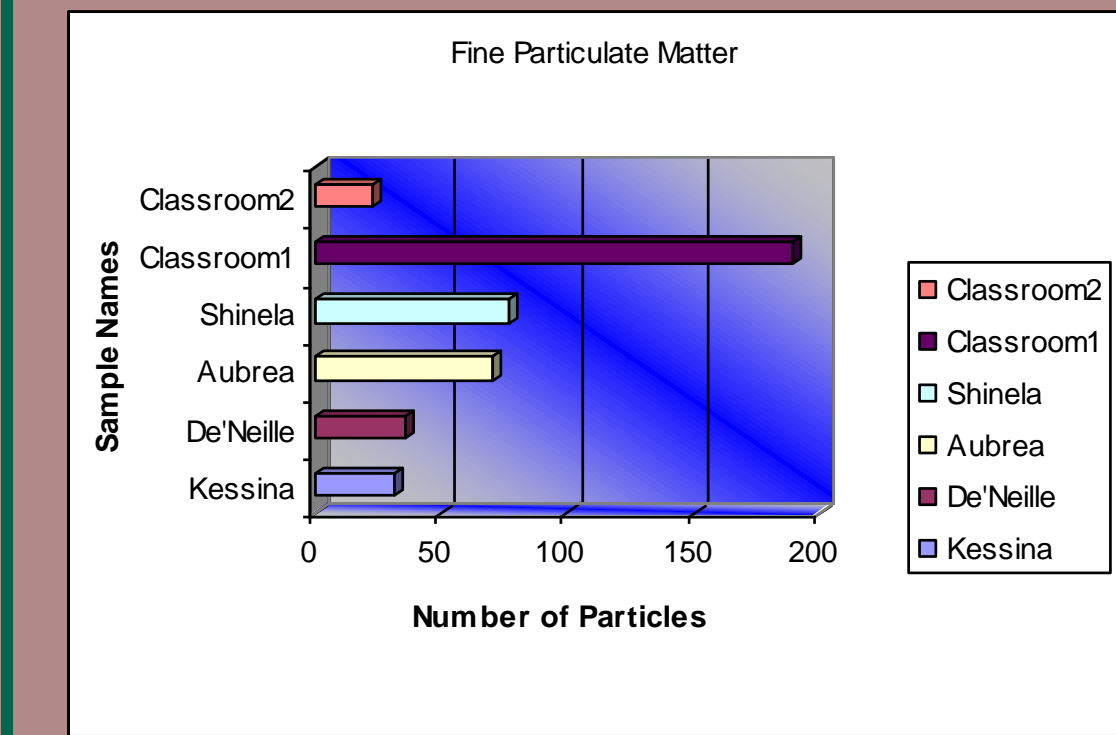
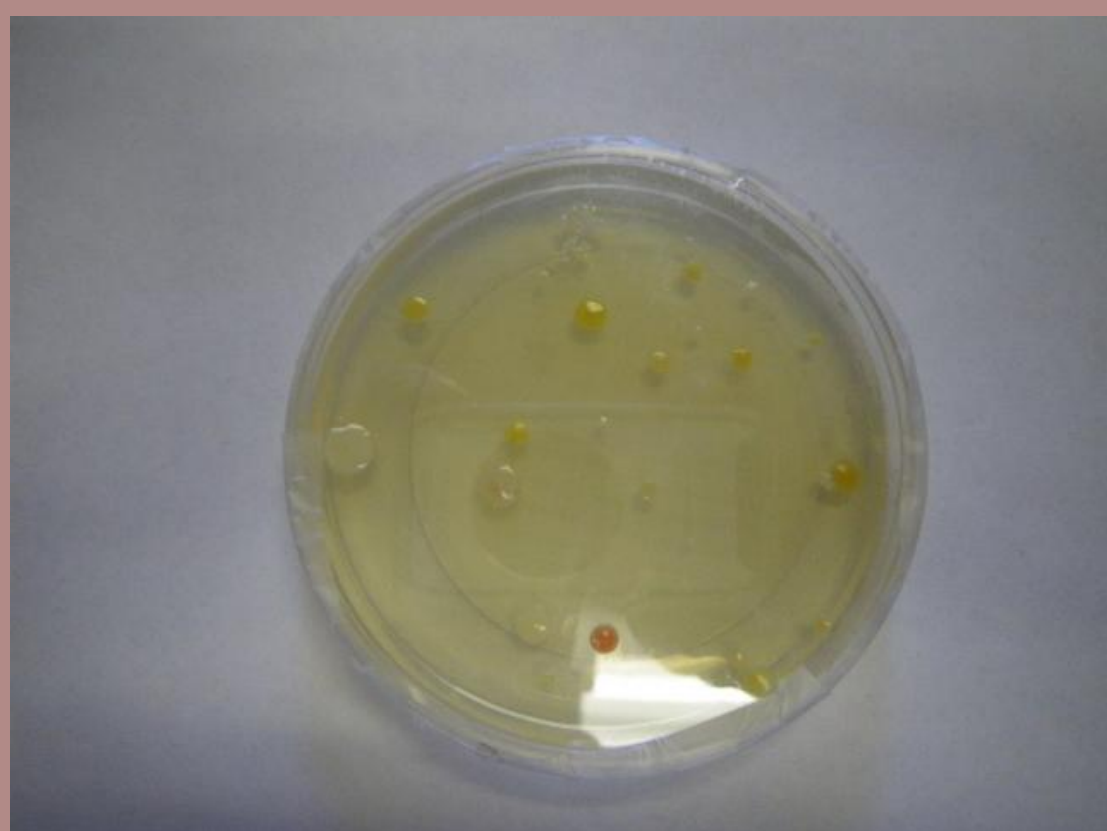
Methods

- We placed the following types of test strips, ozone test strips and fine particulate matter strips around our classroom in Brownsville, our homes, Coney Island, and Prospect Park.
- We analyzed the ozone test strips by looking at the color, different colors represent different levels of ozone.
- We counted the fine particulate matter (particles smaller than 10 micrometers). They are *particularly* dangerous since they can actually enter the lungs and cause asthma, lung cancer, heart disease and death. We also placed bacterial test plates around our classroom.
- Then, we counted the number of bacterial colonies that formed on the plates.

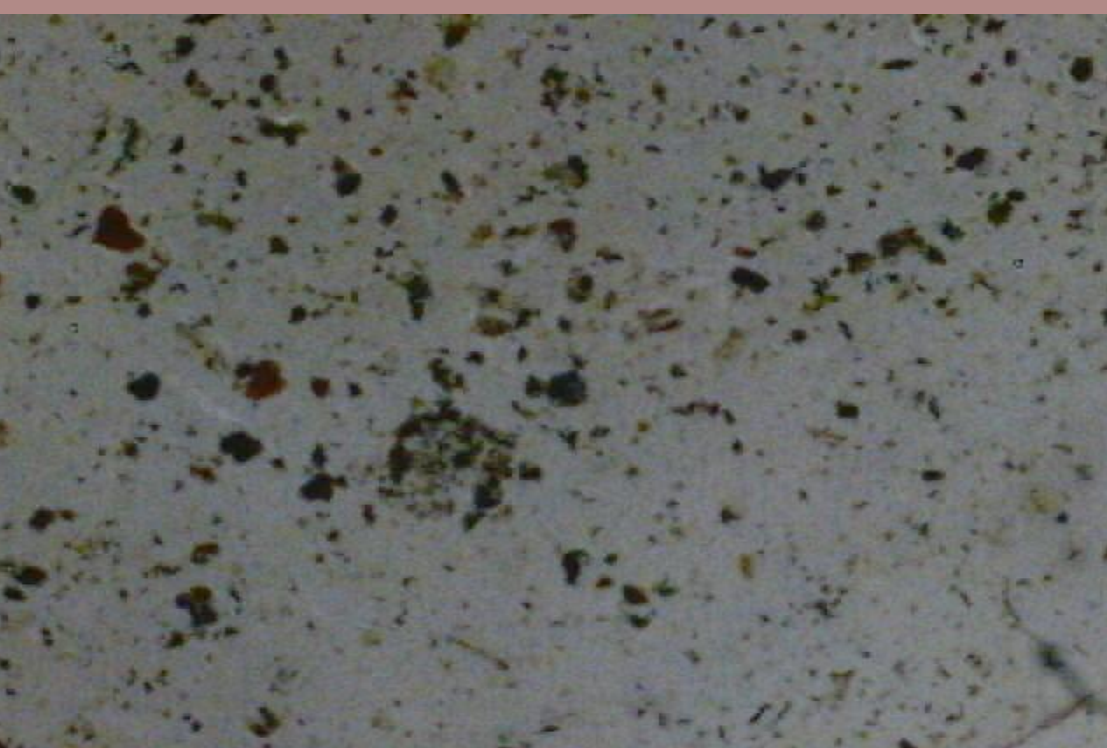
Results and Conclusions



We found mold (Left) and bacteria (Right) in the classroom

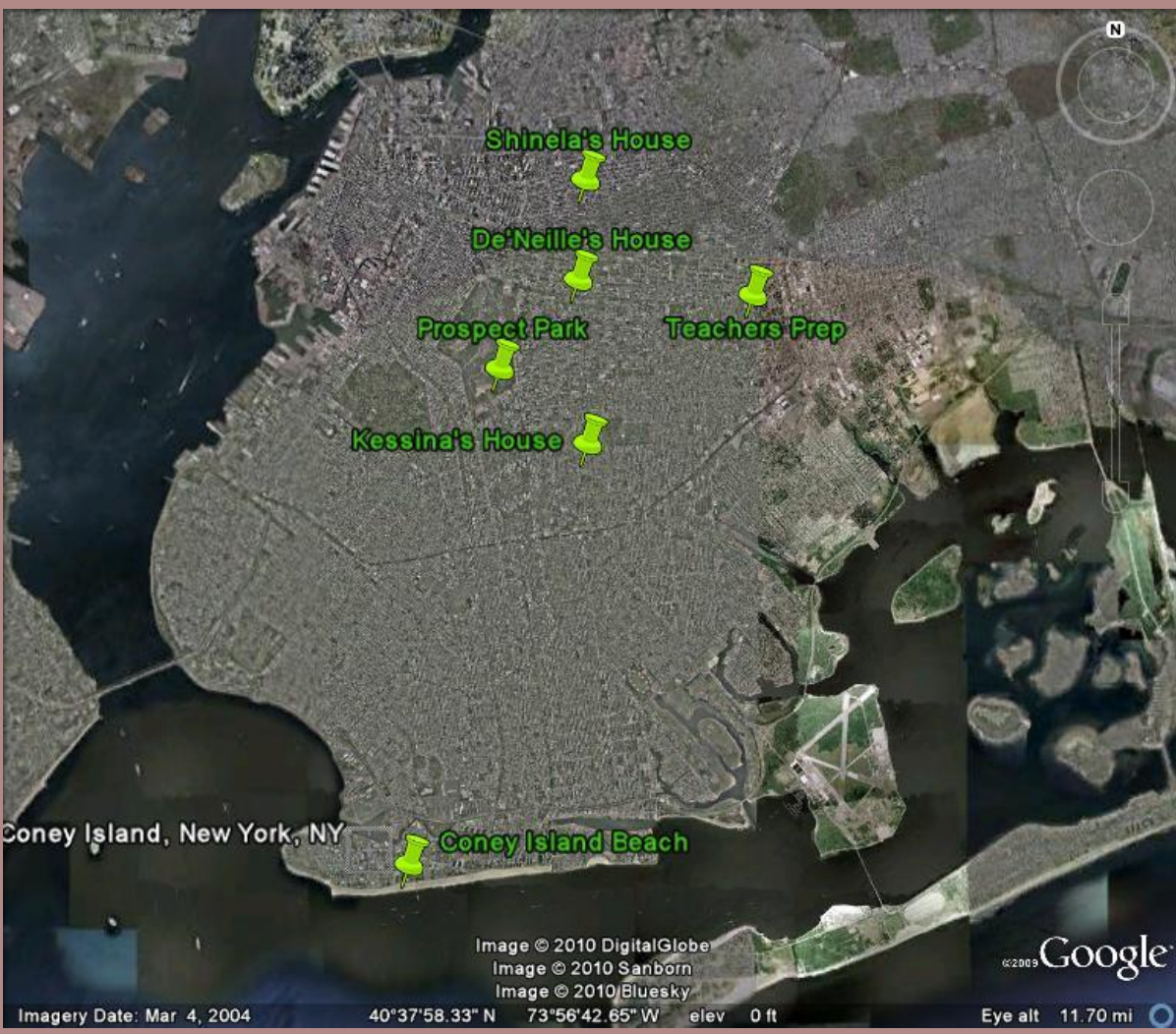


We found that the air at TPS had more particulate matter than the other spots we tested



| Location | Ozone Level (ppm) |
|----------------|-------------------|
| Coney Island | 0 |
| Prospect Park | 0 |
| Outside School | 0 |

- We did not find evidence of Ozone at any of the sampled locations
- The overall results indicate that the air in Brownsville is not safe and we need to improve air quality there



Experiment 2 WATER

We wanted to find out whether the water in our environment is safe. We conducted a 15 step water quality test on ocean water, drinking water and lake water. From our results, we concluded that our drinking water was generally safe to drink. We also concluded that the ocean water was generally safe to swim and conduct other activities in. In comparison, we found that the lake water was not safe to drink or swim in.

Methods

We collected water samples from Coney Island Beach and Prospect Park Lake. We used a 15 step kit to test for harmful substances such as pesticide, lead, and chemicals such as bacteria, alkalinity, chlorine, copper, hydrogen, iron, nitrite and nitrate. In addition we collected water samples from our respective homes and tested for the same substances. We poured some of our samples into small cups, and placed test strips in the water until it changed colors. Afterward, we compared the colors to the master sheet to see if any harmful substances were in our water.

Results



| | Prince | Sultan | Dorrelle | Michael R. | Michael B. |
|------------------|--------|--------|----------|------------|------------|
| pH | 3 | 5 | 4 | 4 | 4 |
| alkalinity | 4 | 80 | 3 | 0 | 0 |
| Chlorine | 0 | 0.2 | 0.2 | 1 | 0.05 |
| Hardness | 50 | 50 | 50 | 50 | 0 |
| Iron check | 0 | 0 | 0 | 0 | 0.6 |
| Sulfate check | 0 | 250 | 0 | 250 | 0 |
| Sensafe check | 0 | 0 | 0 | 0 | 0 |
| copper test | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Nitrate nitrite | 0 | 0 | 0 | 0 | 0 |
| Hydrogen sulfate | 0 | 0.3 | 0 | 0 | 0 |
| chloride check | 490 | 500 | 430 | 500 | 470 |



- Generally, the ocean water was safer than the Prospect Park Lake water.
- Fortunately, all of our homes had safe water.

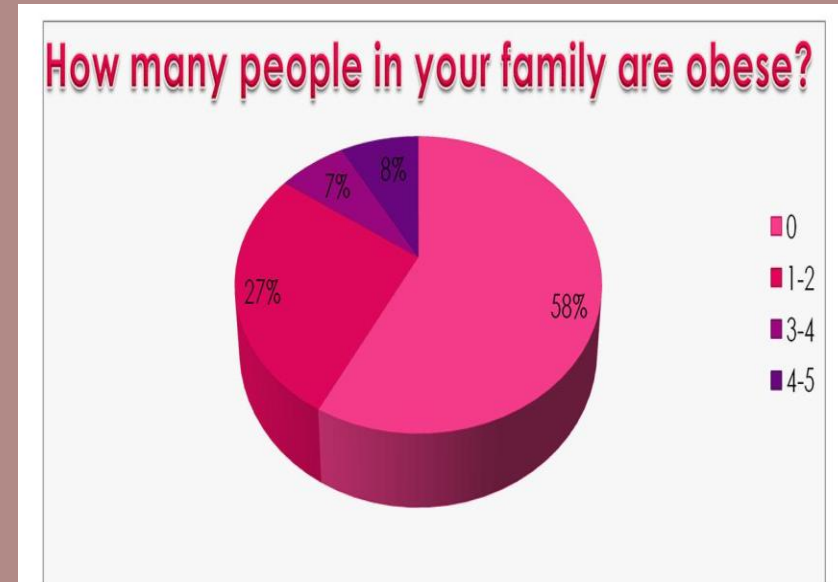
Experiment 3: HEALTH

In this investigation we wanted to find out what are some of the main diseases affecting the Brownsville community. We distributed surveys to students in Teachers Preparatory School who live in the Brownsville community. We asked health questions about them and their family members who also live in the Brownsville community. We analyzed the surveys and found that some of the main diseases affecting the community are Lung Cancer, Diabetes, HIV/AIDS, Heart Disease, and Asthma.

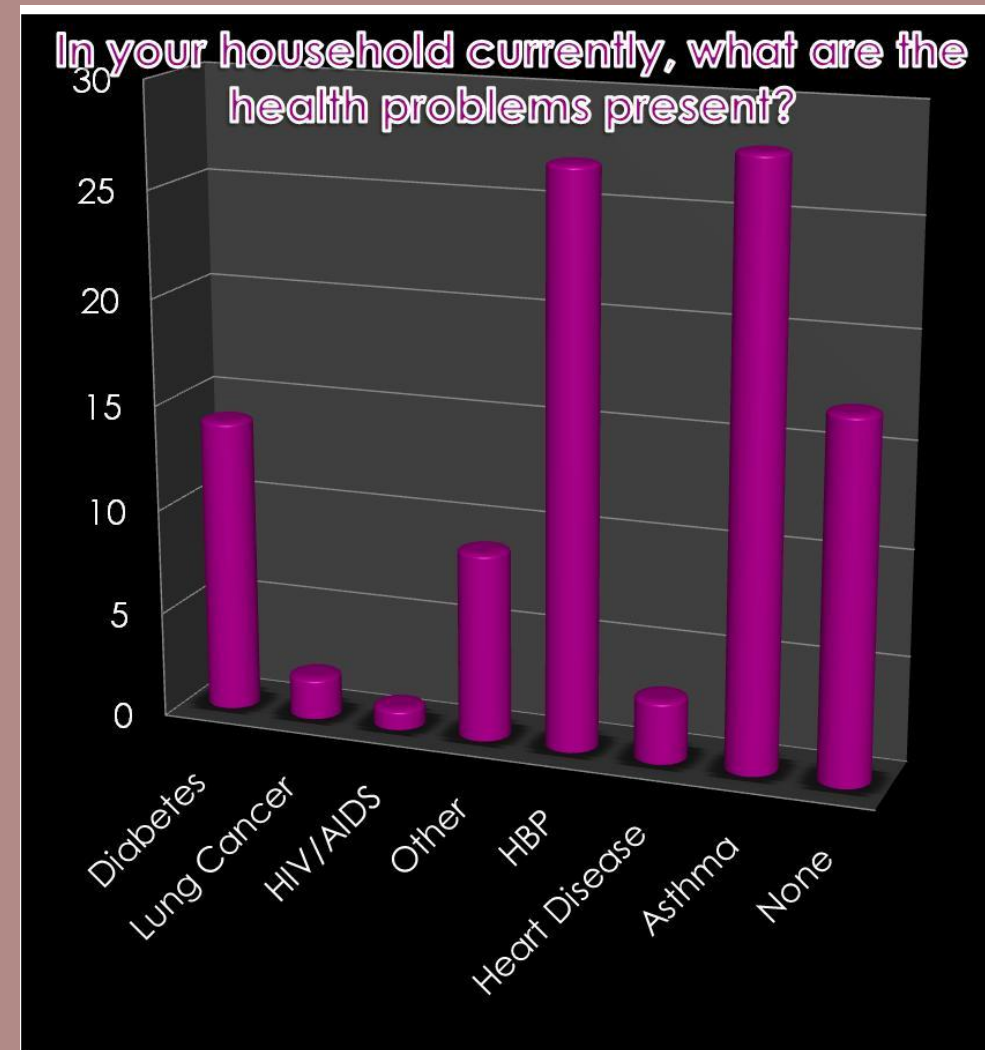
Methods

We studied this problem by interviewing students who live in the Brownsville community about the diseases that affect them and their family members that live in the Brownsville community. We recorded the most common diseases and correlated them for possible causes.

Results



Brownsville community is affected by Diabetes, Lung Cancer, HIV/AIDS, Heart Disease, Obesity, and Asthma.



Map Key:
Food Related Illness
Respiratory Illness
HIV/AIDS
Good General Health

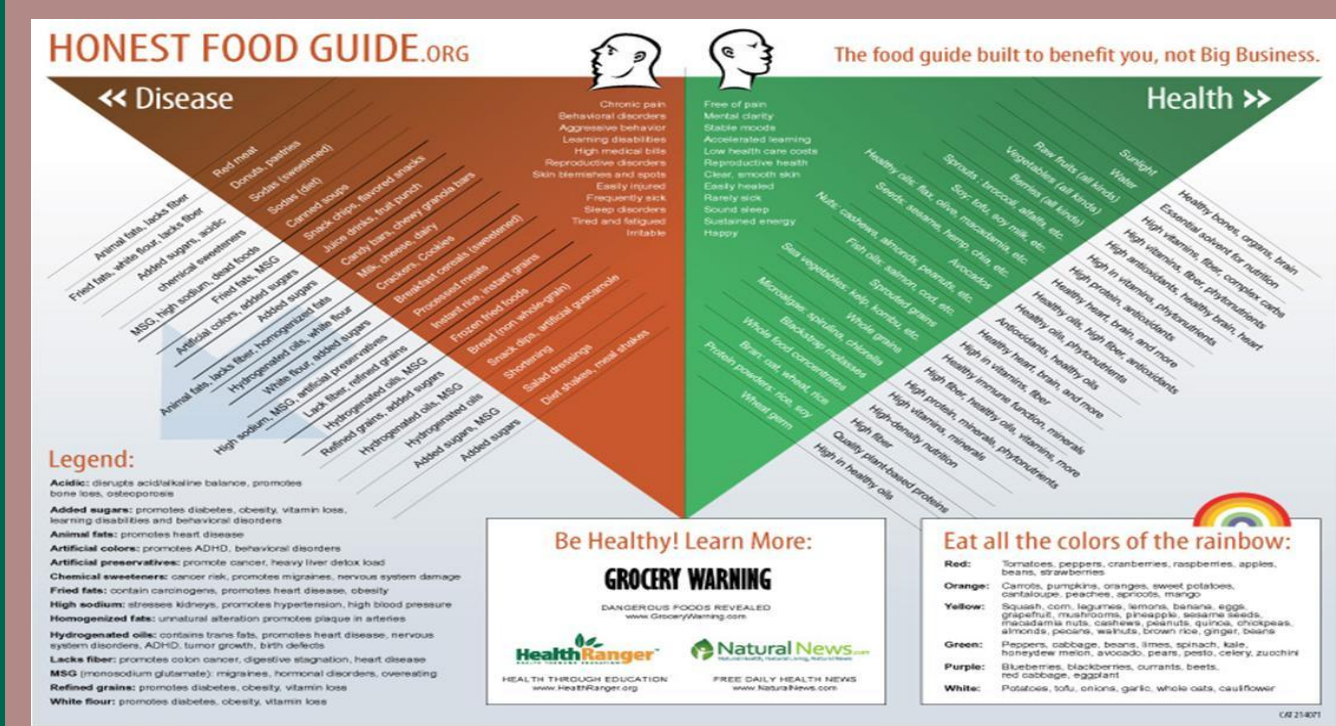


•These diseases take lives each year. We predicted that the community would be affected by diseases that come from a bad diet, and we were correct. The Brownsville community consists of as many as 20 types of fast food restaurants. People see fast food as inexpensive and easy access, so they eat and enjoy the food. However what they do not know is that consuming many of these fast foods can lead to the health problems we studied.

Experiment 4 FOOD

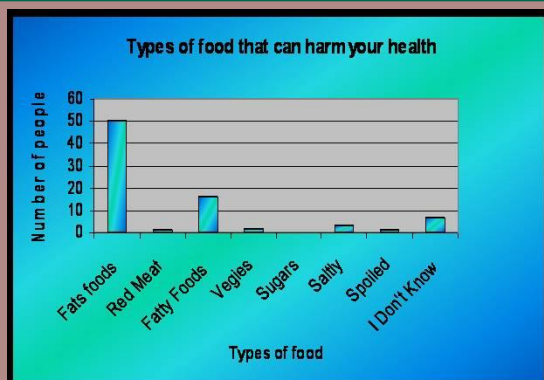
The goal of this experiment was to find out if the foods Brownsville residents eat are healthy or unhealthy. We created a survey to find out whether Brownsville students ate healthy or unhealthy foods and how often. Our results demonstrate that most people consume fast foods at least once a week or more, suggesting that they are eating unhealthily. After collecting our data we found that Brownsville residents ate unhealthy foods, therefore we plan on persuading Brownsville residents to eat healthy foods for their own sake.

Methods

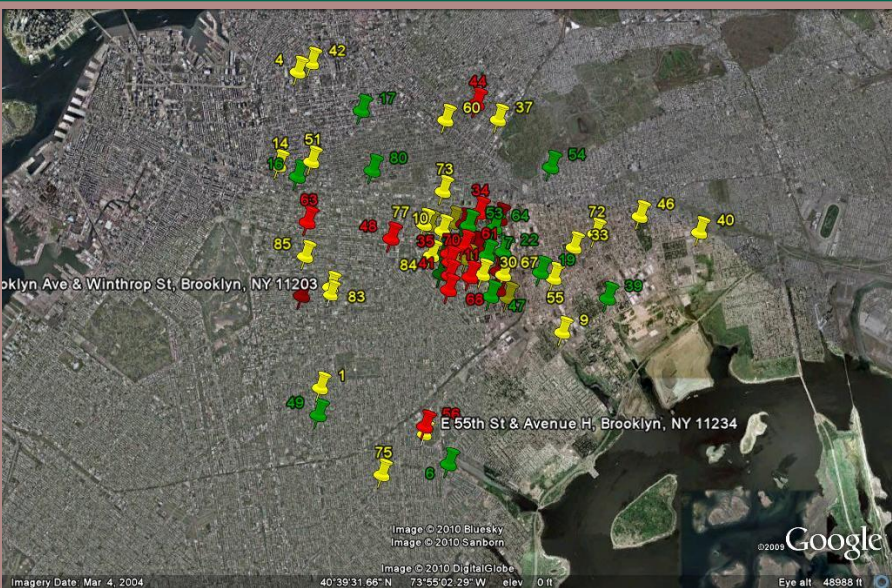


We surveyed the community to see what kind of foods they are eating and categorized them as healthy or unhealthy eaters based on their eating patterns using the Food Guide presented on the left.

Results



Map Key:
Unhealthy
Average
Healthy



Our data shows that while most people think that fast food can harm your health, they still consume it at least once a week

Experiment 5 CRIME

The goal of this study was to find out how safe Brownsville is, what kind of crimes occur in Brownsville, and where they occur.

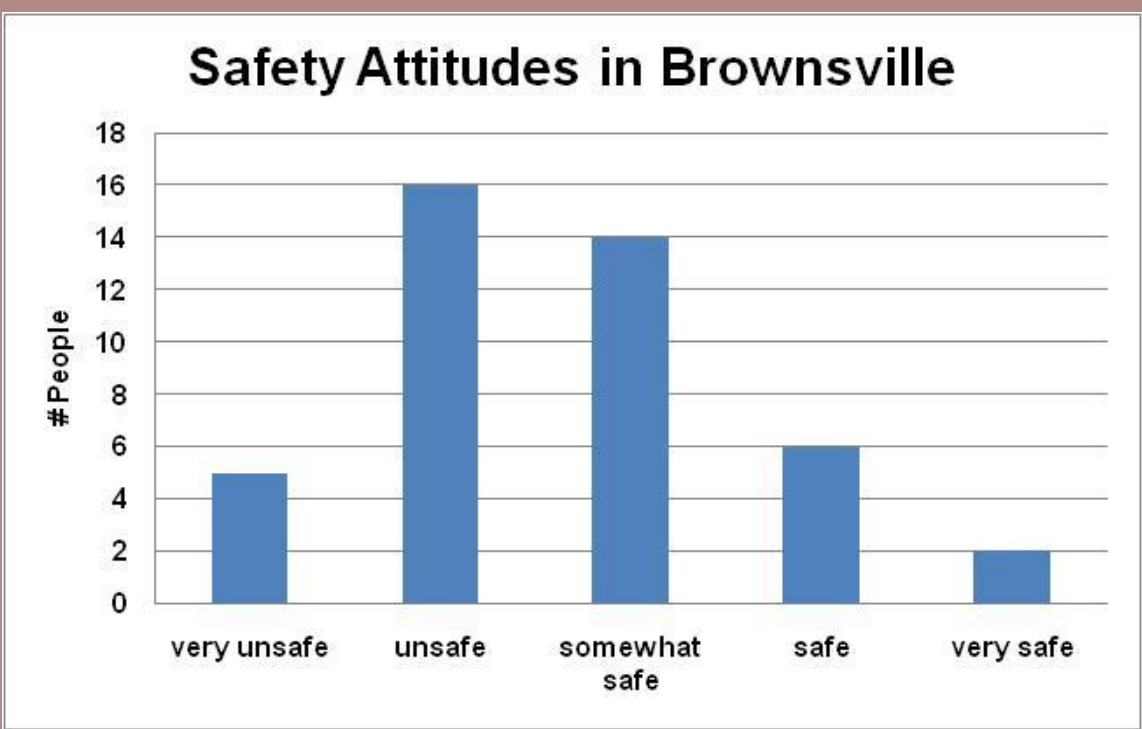
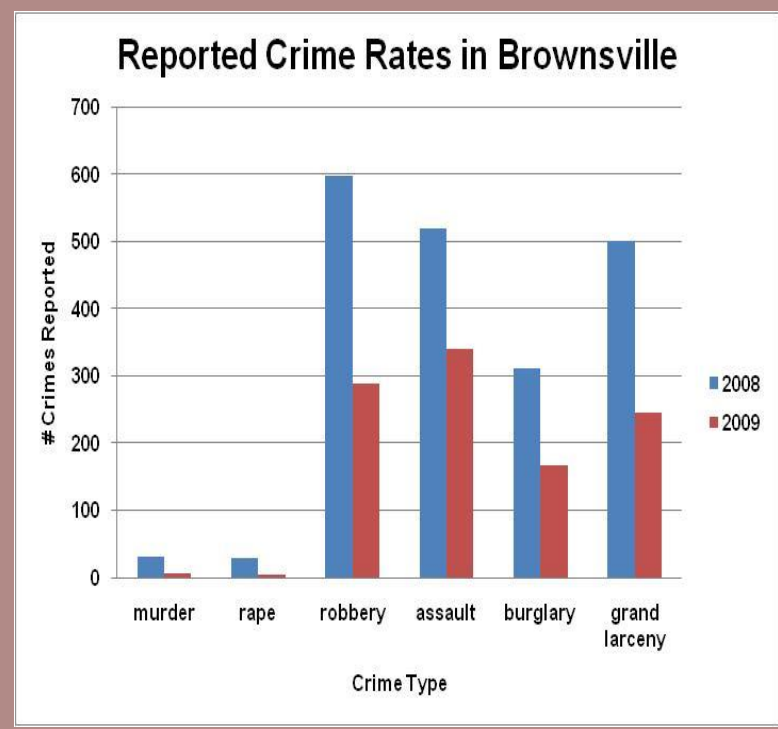
Methods

We surveyed Brownsville residents regarding their attitudes about crimes in Brownsville. We compared their attitudes to the crime statistics released by 73rd Precinct in Brownsville. In addition, we made and distributed informational flyers regarding crime prevention, and what to do if one is a victim of a crime or is aware of a crime being committed.

Results



Areas where most crime occurs



- These are the results we got from surveying the neighborhood and looking at the statistics from 73 Precinct
- In conclusion, the crime rate in Brownsville has decreased exponentially over time. However the people of Brownsville community still feel it is very unsafe.
- We also wanted to interview the police officers from the 73 Precinct but we were unable to do so because they were too busy fighting crime in the neighborhood.

General Conclusions

We found that the water in Brownsville is safe to drink, however, we also found that the air contains a high amount of particulate matter, which appears to be affecting the health of the community. In addition, we found that most health problems in the community are related to poor eating habits. Finally, we found that while the crime rates are decreasing over the past few years, most Brownsville residents still do not feel safe here. Obtaining information is the first step in understanding our community. We are hoping that with this information we can take valuable steps to make a difference. We have already taken steps to educate our community about healthy eating habits and crime prevention. We are going to continue informing others about making healthier choices and hopefully we can all become a part of this movement to make a difference.



Teachers Preparatory School
226 Bristol Street
Brooklyn, NY 11212
(718) 498 - 2605
Research Supported by NSF GK-12 Grant

