# Air Pollution in Classrooms at Haines City High School

[name omitted for sample]

Abstract:

A growing concern in our world today is global warming. Pollution is on the rise and is causing numerous health problems. The purpose of the experiment is to find out the air quality at Haines City High School. Many students are inside in what may not be the safest environment, due to the poor air quality. The hypothesis of this experiment is if I test three rooms of the school (an art room, a math room, and a Spanish room), then the art room tested will have a poorer air quality than the other areas, due to the chemicals used.

Air quality in this experiment is going to be measured by the amount of particles collected on a petroleum jelly covered slide. These particles will show the amount of pollution in an area. The particles will have stuck to the slide, so they will be easy to see. The number of particles will be placed in a scale of one to fifty, with fifty or more particles being extremely hazardous. According to previous research, poor air quality is a big problem in most countries.

After all the testing, my hypothesis was proven incorrect. The Spanish room was the room that had the most particles collected. The art room actually had the lowest total number of particles. All classrooms maintained a fairly safe level of pollution, staying below the danger zone of forty to fifty particles.

# Introduction:

A growing concern in our world today is global warming. But has anyone considered that the air quality is what might being doing the damage to the earth. Pollution is on the rise and is causing numerous health problems.

The purpose of the experiment is to find out the air quality at Haines City High School. Many students are inside in what may not be the safest environment, due to the poor air quality. If we can determine the areas with poor air quality, then something can be done to cleanse those areas. If this project was to be done on a larger scale, then there would less health problems due to less pollution.

The hypothesis of this experiment is if I test three rooms of the school (an art room, a math room, and a Spanish room), then the art room tested will have a poorer air quality than the other areas, due to the chemicals used.

In order to do this project, one must know the definition of air quality. Air quality in this experiment is going to be measured by the amount of particles collected on a petroleum jelly covered slide. These particles will show the amount of pollution in an area. The particles will have stuck to the slide, so they will be easy to see. The number of particles will be placed in a scale of one to fifty, with fifty or more particles being extremely hazardous.

According to previous research, poor air quality is a big problem in most countries. Microsoft Encarta Encyclopedia states that the Environmental

Protection Agency (EPA) measures air pollution by collecting samples from various areas. The samples are graded on a scale of 0 to 500, indicating how many parts per million (ppm) contain these pollutants. A sample of 0 to 50 ppm indicates good air quality; 50 to 100 ppm, moderate air quality; 100 to 200 ppm, unhealthy; 200 to 300 ppm, very unhealthy; and 300 to 500 ppm, hazardous. Most areas try to stay within the 0 to 100 ppm range. For this experiment, I'm going to scale down the range by having the scale go from one to fifty parts per slide. In 1970 the Clean Air Act was passed. This act regulates the pollution produced by U.S. cities. However, according to the EPA pollution in the U.S. has been up since 1985. If this trend continues, disastrous consequences are going to follow. According to an article by the Associated Press, U.S. National Parks are already starting to feel the effects of the damage. Nobody seems to do anything because they believe that it doesn't happen where they live. In this experiment, I hope to support the fact that air pollution affects everywhere, even a local school.

Materials:

- 1 jar of petroleum jelly
- 12 Microscope slides
- Ruler
- Magnifying glass
- String
- Permanent Marker
- Masking tape

## Procedures:

First you collect the twelve slides. Then using a ruler, measure an area with a length of 2cm and width of 4cm. Mark the dimensions by using the marker. Then using the tape, create a 2 by 4 cm rectangle on the slide. Use the string and tie it to the slide, so it can be held in place at the testing area. Attach a masking tape tag with the info on which area the slide is going to be placed. Apply the petroleum jelly to the area that is not covered by the tape. Repeat the second through seventh step for the other five slides. When done, place two slides in each of the designated areas. Leave the slides at least twenty four hours. Then collect the slides from the areas, using a clean slide to protect the collected particles. Using a magnifying glass, count the number of particles on the petroleum covered area. Record the results by grouping them according to the area. Analyze the data by comparing the average number of particles for each area, using a bar graph.

## Results:

| Room | Sample | Number of Particles |
|---|---|---|
| Math | 1 | 12 |
| | 2 | 13 |
| Art | 1 | 13 |
| | 2 | 10 |
| Spanish | 1 | 14 |
| | 2 | 15 |

*Table 1*

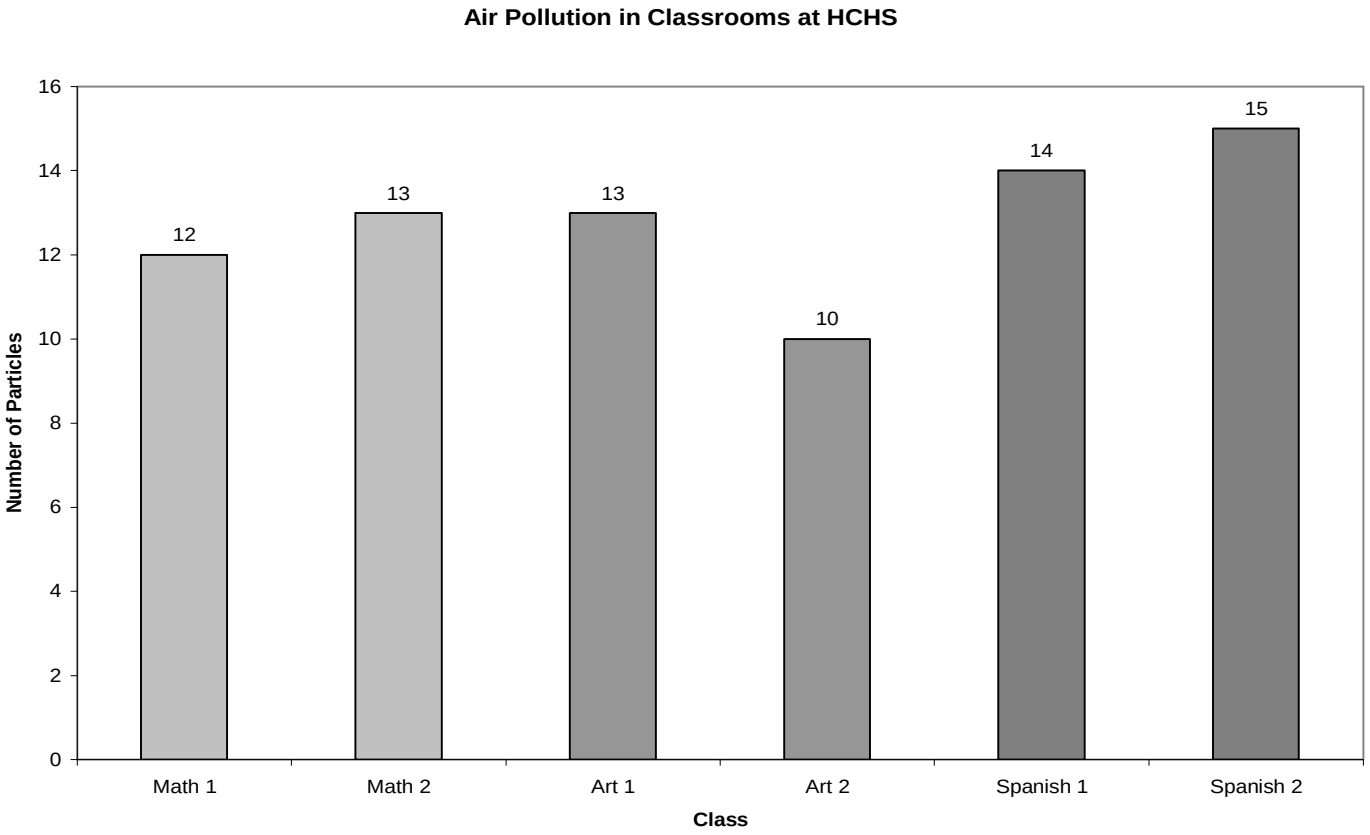


*Figure 1*

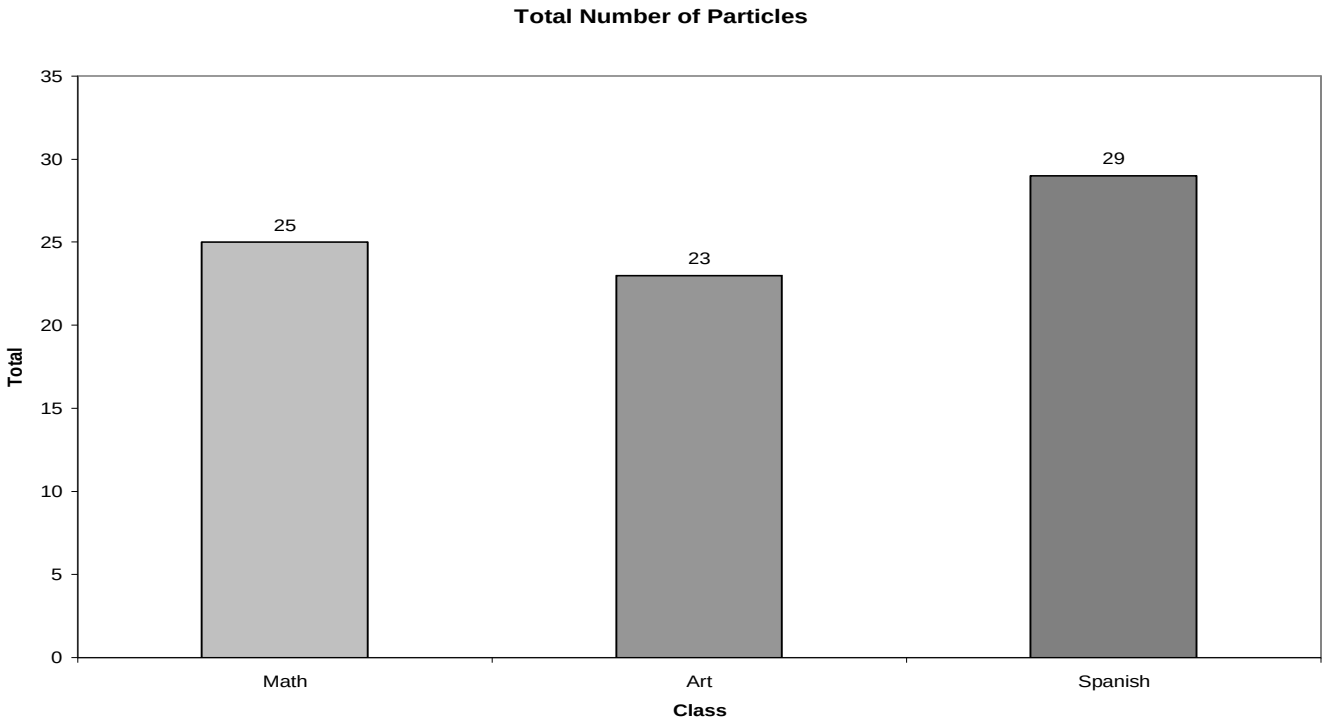


*Figure 2*

## Conclusion:

After all the testing, my hypothesis was proven incorrect. The Spanish room was the room that had the most particles collected. The art room actually had the lowest total number of particles. This may have happened because the Spanish room may receive more foot traffic or the room receives more air from outside. All classrooms maintained a fairly safe level of pollution, staying below the danger zone of forty to fifty particles.

One way to better this experiment is to perform the experiment outside. There the slides would be more exposed to pollution. Another way would be to leave the slides exposed for much longer, in this experiment they were exposed for twenty four hours. If they had been exposed for forty eight hours, the results could have varied greatly.

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