



Name: Humza Mohsin

Grade: 7

School: Captain Nichola Goddard School

Project Type: Research/Study

Project Title: Cloud Seeding: A Holy Grail For A Colossal Problem?

November 22, 2023:

Observations:

1. Whilst watching the Cricket World Cup, they couldn't celebrate with fireworks due to the immense amount of air pollution.
2. I learnt from the news that they canceled fireworks in Delhi for Diwali due to air pollution in the air.
3. My maternal side of the family, who live in Lahore, Pakistan, were talking over the phone about air

pollution in Punjab. Every school in Punjab is closed on Fridays and Saturdays for the same reason.

Question: What is causing all this air pollution? Why is it happening? It has come to an extent that it's disturbing everyone's daily life. What is the solution?

November 23, 2023:

Today, I researched and found out the reason for all the smoke in the air.

- Vehicle emissions
- Natural gas for heating
- By-products of manufacturing
- Coal-fueled power plants
- Fumes from chemical pollution

I need to find out and research a proper and effective solution for this important cause.

November 24, 2023:

Possible solution: Rain: natural/induced

Thinking about pollution in Asia, in countries such as Pakistan, India, China, etc, I thought that rain helps. Weather systems are built naturally, but cloud seeding is a great alternative, controlled by humans. It is a modification of weather in the atmosphere.

November 28, 2023:

- Researched other solutions for pollution
- Main focus: Smog: air pollution which reduces visibility

November 30, 2023:

Meeting at school and getting access to the Google Classroom. Got my name and idea listed too. Looked over the Google Classroom for a basic understanding of what I am required to do. I'm doing a research project. I reviewed the rubric and what is necessary for a research project.

December 1, 2023:

Today, I went over the research project requirements again to work on them. I have written my question and hypothesis.

Question: How can we combat the effects of smog?

Hypothesis: If rain can settle down fog, can it settle smog too because of the mixture of fog and pollutants in smog?

December 3, 2023:

What is smog?: It is air pollution which can reduce visibility. It is made up of smoke and fog, coming from the burning of fuels.

How does it affect us?: There are many ways that smog can affect us. That includes an increase in automotive collisions, lung disease, hospital admissions and an increase in deaths.

December 6, 2023:

To get a clearer view of what to do in my background research, I went to the CYSF website and reviewed a past project for a better idea. I also got access to the

platform.

December 12, 2023:

Today, I did some more in-depth background research. I am trying to completely understand my topic. Along the way, I collected the website links from where I read.

December 13, 2023:

Today, I continued doing background research to further and thoroughly understand the topic. I continued to collect the website links.

December 14, 2023:

Today, I continued doing background research to answer my questions. I also collected websites for my topics. There was a meeting at school today for just a brief meet up.

Effects of Humans:

- Causes lung diseases, cancer-related illness and other harming effects
- Can cause premature deaths (babies or younger children)
- Increase in automotive accidents due to particulate matter's disruption and decrease of vision

Effects on Animals:

- Lung diseases
- Can cause extinction of certain species

Effects on Plants:

- Can cause leaf to die and yellow (loss of

chlorophyll)

- Prevents growing of roots and stops blooming
- Acid rains can destroy plants

December 15, 2023:

Today, I started researching a new question: What ways can we prevent/reduce smog? I collected information while also collecting their links.

How can we help prevent it?

- Driving your car less and keeping it in good condition
- Don't burn garbage
- Less energy use

Technologies already in order:

- Catalytic converters
- Scrubber in industrial exhausts
- Low-energy appliances

December 17, 2023:

Today, I researched what cloud seeding is. It is a weather modification in which ice nuclei get initiated into clouds. Then the process of precipitation is completed/enhanced.

December 30, 2023:

Today, I researched how cloud seeding is initiated. There are two main ways: ground-based and aircraft based. The silver iodide is burned from the ground-based method and is related VIA the aircraft method. I also filled out the basic information on the platform. Including the Ethics and Due care form.

January 19, 2024:

Today, we had a meeting during lunch. We discussed our progress and what we were supposed to do.

January 21, 2024:

Today, I started to type the problem section on the CYSF platform. This included everything about what is the issue I'm working on.

January 22, 2024:

Today, I started and finished re-typing my problem as it had got deleted. I will re-read and edit it another day. Then I will submit it.

January 30, 2024:

Today, I re-wrote and edited my problem, making improvements. I will re-read and submit it soon.

February 12, 2024:

Today, I read my problem over and edited it. Then I submitted it. After that, I researched what silver iodide was and how it could affect humans. I also started to work on writing my method.

February 13, 2024:

Today, I finished typing my method section. I included 3 sections on how I worked on my project in its entirety. I will edit and submit it soon.

February 14, 2024:

Today, I started to work on typing up my 'research'

section. I included what smog is, its affects and relation with temperature. I will continue working on the 'background research' section, hopefully finishing it tomorrow. Then I will type my 'research'.

February 15, 2024:

Today, I finished the 'What is smog?' section of 'background research'. I will edit this later. Then I started typing 'What is cloud seeding?'. I will hopefully finish this tomorrow.

February 16, 2024:

Today, I finished 'What is cloud seeding?' and got started on 'research'. I started with precautions to take and will continue tomorrow.

February 17, 2024:

Today, I finished typing up the precautions to take to reduce smog. I then started on technologies that have already been made in this effort. I also edited and submitted my method section.

February 18, 2024:

Today, I finished typing about technologies that help reduce smog. Tomorrow I will start typing about how cloud seeding is initiated and what silver iodide is.

February 19, 2024:

Today, I was very productive. First, I typed up how cloud seeding is initiated. Then I started typing about silver iodide and its introduction. I also typed up what two chemicals make it up and their chemical bond;

silver and iodine.

February 20, 2024:

Today, I started with researching and typing the chemical and physical properties of silver iodide. Then I listed other uses for silver iodide, such as photography. Then, I listed all the harmful effects of the chemical.

February 21, 2024:

Today, I started typing up the history of cloud seeding, how it started and countries which have used it. Then, I started to type up other implications of cloud seeding such as hailstorms and drought. I will finish this tomorrow and start with editing.

February 22, 2024:

Today, I finished up my research part with other implications. I started editing a little bit but will continue tomorrow. I also met with my coordinators at school, discussing some deadlines.

February 23, 2024:

Today, I decided to add more information to my 'research' section. I added information about cloud seeding projects around the world.

February 24, 2024:

Today, I edited all the placement issues and text size issues once I put my 'research' into the platform. I also submitted the data section, for which I had nothing to submit. Additionally, I typed up my log book in a



document to add to my project in the 'attachments' section. Tomorrow I will edit and submit my 'research' section and start the conclusion.

February 25, 2024:

Today, I started typing up my conclusion. It included all uses of cloud seeding, newer ones and future uses. I will continue working on this tomorrow.

February 26, 2024:

Today, I finished typing up my conclusion, edited it and submitted it. I also typed up my acknowledgement.

February 29, 2024:

Today, I worked on collecting my website links which I used for research into a document. This would fill my 'citations' section.

March 1, 2024:

Today, I added on to the 'research' section of my online section. This was adding the relationship of smog and cloud seeding, with evidence.

March 2, 2024:

Today, I got access to my computer again. This enabled me to put my citations into the platform, submitting it. Then, I started working on my presentation, making a powerpoint.

March 3, 2024:

Today, I continued working on the slideshow for my

presentation. I will continue to work on this tomorrow.

March 4, 2024:

Today, I finished my slideshow for the presentation section. I started editing and reviewing my powerpoint.

March 5, 2024:

Today, I started working on presenting my slideshow by making a plan on how to present my slideshow. I found a program which I could use to record the presentation.

March 6, 2024:

Today, I completed my presentation after reviewing the online portion of the project. I recorded the presentation and submitted it. I have finished the online portion of my project.