

LOGBOOK

Nov 8th

For Cysf 2025 I'm thinking about hydrogen fuel cells and their diverse applications. For example hydrogen can be used to power things like cars and trains leaving only water exhaust.

However I cannot construct my own fuel cell as it is very complicated and time consuming, so I would have to do a research project.

Nov 17th

After careful consideration I turned in my planning sheet with a innovation using the plastic called melamine. I found an article from the University of Berkley about melamine and amine compounds making a efficient and cheap carbon capture device.

Nov 30th

I have researched thoroughly about melamine and I am starting my Cysf sections. Using many sources and various research papers I have compiled a variety of information on this topic.

Dec 13th

I have reached a setback where melamine is quite scarce and hard to find. I need a business license to purchase this and can only purchase

tons of it at a time. After some research I emailed the University of Calgary's Chemistry department where they gave me some helpful information.

Dec 23th

I am looking into changing my project idea back to something more feasible as I cannot move forward without melamine. Also melamine in its powder form has complicated matters for my procedure.

Jan 3th

After days of research I have realized that I can still move through with this project, however instead of using concentrated melamine powder which is scarce for science experiments I found a much cheaper and easier solution.

Melamine sponges. Melamine sponges are strictly not the same as they are made of formaldehyde-melamine-sodium

bisulfite copolymer, I can still use this for the project but I have to slightly tweak the procedure.

Jan 11th

I have reached another setback. The amine solution that I had planned for was called DEI and can only be bought in wholesale, this has made DEI very expensive.

Jan 18th

Going through various research papers I realized that DEI was very similar to a different chemical called Calcium Hydroxide. The only problem was that after absorbing CO_2 for weeks a hard crusty exterior would form on the melamine making it not able to absorb CO_2 .

Jan 20th

Another thing to think about was how to test the feasibility of the saturated melamine. With the help of my parents I devised a structure that can test if it absorbs CO_2 using litmus paper. If CO_2 is in contact with litmus paper than the blue litmus paper should turn red as CO_2 is more acidic.

Jan 29th

I found the exact materials I needed and ordered a few things on amazon.

Glass vials to test melamine, sponges, litmus paper and calcium hydroxide.

Feb 8th

The materials all arrived allowing me to start my project.

Feb 12th

I constructed my system to prove melamine can absorb CO_2 .

And I also prepped the slurry to immerse melamine in and immersed it in it.

Feb 16th

I conducted my first trial and to prove litmus paper would turn red under CO_2 worked. However there were some errors in melamine stopping CO_2 . I made a new batch of melamine and waited for it to dry.

Feb 26th

I conducted my second trial where I had far better results.

Mar 3rd

I finished up most of the sections on the CYSF website.

Mar 9th

I started my designing and printing my trifold.

Mar 14th

In- school science fair!!

