

Elegant Engineers

Team engineering journal

January 10th: Ms.Jen came in and introduced the project to us. She talked about the most important rules and introduced the theme And had a mini compassion just to get some ideas

January 12th: We decided on our groups for the project. We thought about who we worked well with and who we didn't until we had our groups we were happy in.

January 17th: We got together with our groups and made a group name, Brainstormed ideas, Registered online, and we read through the handbook.

January 18th: We came up with ideas for the steps in our machine and started to draw a rough draft.

January 19: We started making some of the props and decor for our 5 by 5 space. We made prop test tubes out of old glitter glue containers and molding cement. We also figured out our design.

January 20: We finally got our elephant toothpaste to work because we retrieved all necessary materials



January 21: We met up at Danica's house and put together our 5 by 5 space. We screwed together 3 pallets and covered it with cardboard. After we finished with that we started the painting process.



January 26th: Danica painted the floor and the wall and started to make the grid pattern



January 27th: Ashleigh and Danica painted the white part of the floor

January 28th: We started to change our designs because we didn't think it would work with some christmas lights to turn on with a sensor and Erielle left our group and Jane joined our group

January 31st: We started to put the first step of our project up, which is a ramp. and tested it a few time

February 2nd: We got our first step locked in place and started on the next thing , which is shelf

February 3rd: We started to figure out what we wanted on the shelf to make our next step a different step

February 4th: We decided to put another marbel there have the first one hit it down our next step

February 7th: We made sure our first two steps work then made the 3rd wich is a pvc pipe

February 8th: We marked where we wanted it and drilled a hole for the screw and drilled it

February 9th: We put up the pvc pipe and saw that it wasn't working so kept trying

February 10th: And got it to somewhat work for now and that we would fix it the next day

February 11th: we fix the pipe and started to work on what we wanted our next step to be

February 14th: We started on our third step which consists of 4 3D printed curved tracks, we connected all of them using a 3D pen to make 1 long and curvy track

February 15th: We connected the third step to our project and moved on to the next step which is a funnel and cup we marked our funnel and danica took it home and cut it

February 16: danica brought the funnel back to school and measured for the shelf so we could make it

February 18th: We secured the funnel and cup to the base and we tested it a couple times

February 22nd: We started the next step which was a track we measured the space and cut or wood

February 23rd: We tested our machine a few times and started on our next step February

24th: We got the shelf and track lined up and even add a curve in to the next step

February 25th: We had miss jen come in and look at our progress and gave us tips and told us our idea of wanting some christmas lights to come on with a sensor would work

February 28th: We made a support for our wind chime decoration on top and tested it to make sure the shelf works then we are also making a fake bench for our props

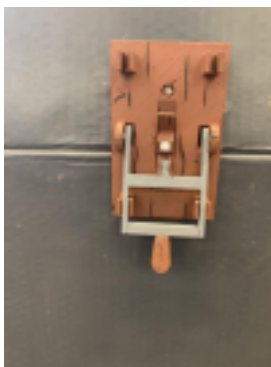
March 1st: Today we painted some decorations and made a spiral ramp with paper plates and a paper towel roll. We spray painted the spiral ramp bright orange. We tested our machine a lot. We planned out some of the next steps for our machine.



March 4th: today we finished our skull wind chime. We put up a decorative shelf, and finished our plinko. Jane spray painted the first coat of a prop and found out that our christmas light idea would not work again



March 7th: today we had a meeting about what steps we want to have. We decided to do a QR code, elephant toothpaste, speed tester and dry ice. Jane made a video of our characters for the QR code thing. We wrapped lights around the skull chandelier. We added a wooden funnel under the plinko. And Jane painted the fairy door and light switch. We also planned our next few steps after the plinko.



March 8th: Today we added two more steps after the plinko, we went through from the top and made sure everything worked. If it didn't we went back and fixed what was wrong with it.

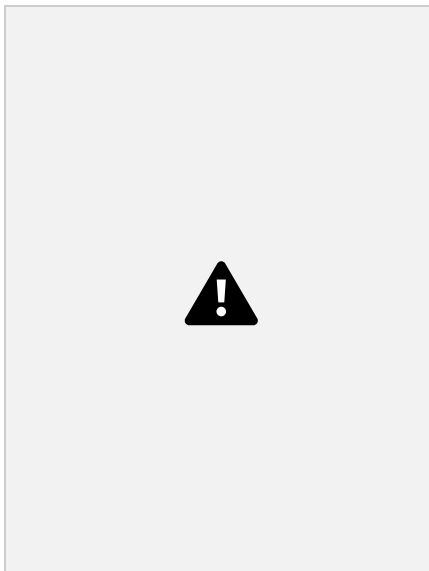


March 9th: Today we glued together some wooden tracks. We added some wood on the bottom of it so that we could connect it. We added a stopper made out of metal scraps after a PVC pipe. We brainstormed for a while on how to do the elephant toothpaste. We decided to do a hot wheel track with a golf ball on it and then it will knock over a cup with the water and yeast. We tested it a few times and touched it up where we needed to. We made some final decorations and added them on.



March 10th: We finished up the final details and made sure it would work the we took it apart and hauled it to augusta where the competition was

March 11th: We showed up early to get ready for the competition. We competed and got first place

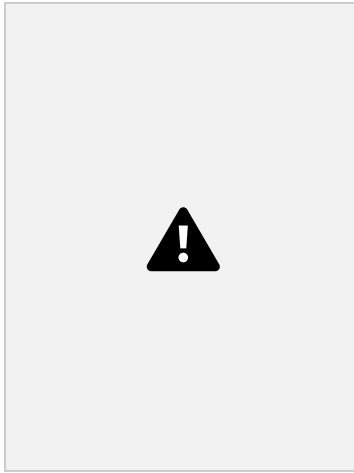


March 16th: We unloaded the projects and took apart the ones that didn't make it. My group put ours in the office so we could work on it

March 29th: After we got back from spring break we took it to Danica's house so we could work

on it more.

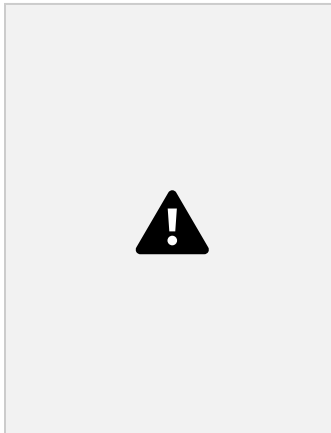
March 30th: Danica and ashleigh reset up the project we added a different curve at the top to make our machine more efficient



March 31st: We added bump stops to make sure the marble won't fall off the track and set of another step



April 9th: Danica made a bucket tipping machine for the elephant toothpaste, and her dad helped.



April 18th: Schroeder picked up the project from Danicas house so then we could all work on it at school

April 19th: We checked every thing over and then set up everything to make sure it worked

April 20th: We tested it and finished our journal and made everything look clean. We also packed everything and organized all of our buckets.

Where we got our materials

All of our materials were either recycled or was donated to us

Pallets and cardboard - donated by lamperts lumber yard

3d printed stuff, paint ,tracks, tools, marbles, screws, - Danica

Wood - donated by Board And Brush Creative Studios.

Pvc pipes, marbles, - Jane

Funnel, cup with a hole for funnel,pool noodle - Ashleigh

Yeast, paint, funnel, golf ball- Samantha

Go! Motion, glass test tube bottles, hydrogen peroxide, safety goggles - school already had it

Dry ice- donated by Mississippi Welders

Successes and challenges

Our challenges were trying to put on some of the steps, getting the elephant toothpaste to work, and we also struggled with getting the 10 steps on and deciding what they would be. We also struggled with getting our machine loaded and unloaded from the trailer and making sure everything stayed where it was supposed to in the process. Our successes would be completing the project how we wanted it to be, getting all the materials that we needed to complete our design, and coming together as a team and deciding what we should do for our project and the steps.

Process/steps

The marble will start by rolling down the green ramp. Then it will hit another marble at the end of the ramp and they will both go down the curved tube in the corner. They will then land in a squiggly track and hit another marble. The marbles will go down the rest of the track and land in a funnel. Once they exit the funnel, they will land in the cup and hit another marble outside the cup then go down the orange ramp. They reach the plinko then slide down the curved tube. They go up then down the next green ramp. Next they roll down our homemade wooden ramp and reach another pvc pipe. The marble will drop into another homemade longer wooden ramp and roll down it until they reach the golf ball. All of the marbles will hit the golf ball which will hit the cup full of water and yeast. The cup will tip over, pouring the substance into the beaker filled with hydrogen peroxide, dish soap, and food coloring, which will create elephant toothpaste.

costs

Everything but dry ice (which was about 25\$) was recycled. So 98% of our machine was recycled

Our reflections

Danica: I think our project went very well. There were a lot of ups and downs with our project. But we all have different ideas and different strengths like I(Danica) is really good at building stuff, Jane is good with computers and Ashleigh is great at painting and is an amazing problem solver. We had a great time and we became closer as friends and learned new stuff about each other but overall we learned new things. We had fun and I think we did a great job.

Ashleigh- I enjoyed this project a lot. I think it taught us a lot of useful things that we could use in the real world, not just in school. Even learning how to use tools was a very useful experience. I think this project could help us with future careers and it was a very good learning experience for all of us.

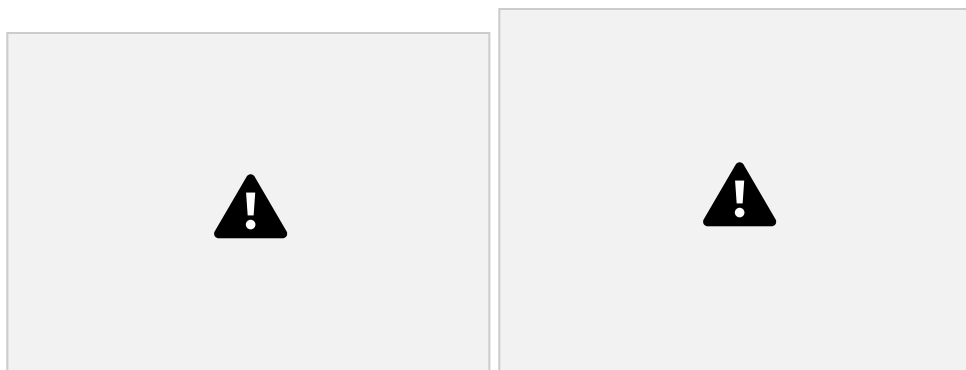
Jane- I really enjoyed this project, it taught me a lot of skills like teamwork and learning how to use tools. I enjoyed brainstorming different ideas and being able to use a drill. I think this project went very well and that we used our time wisely. I am glad that we did this project because it can help us with future projects and careers.

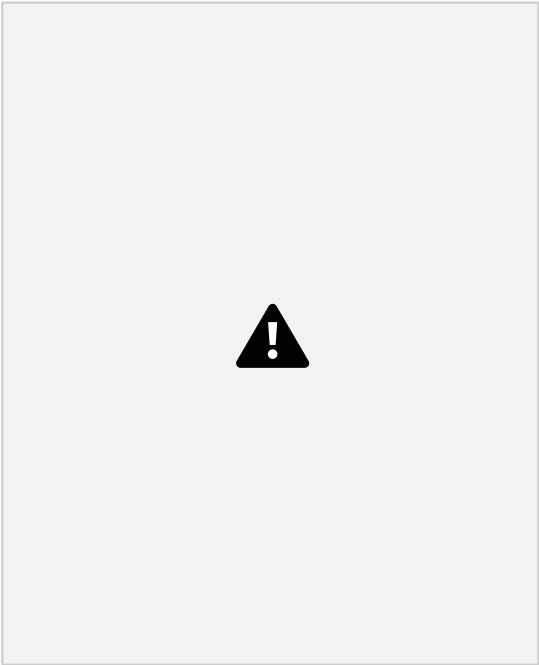
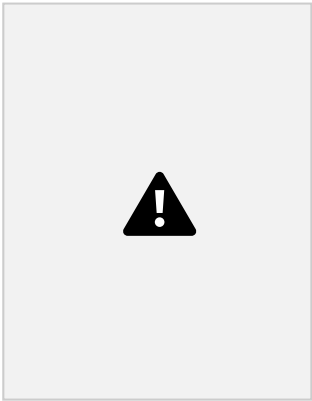
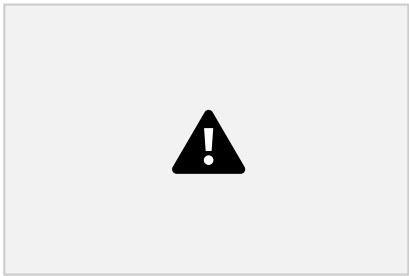
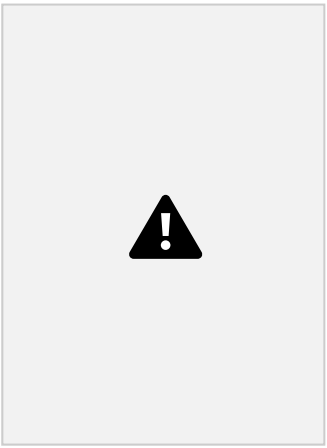
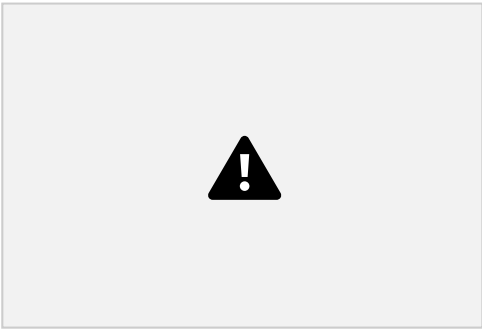
Samantha- I think this project went well I think i could have done more to help my group and not run off but I like this project with the brainstorming but i think we all came together with our materials and knowledge like jane's idea of the plinko, ashleigh's great brainstorming and danica's great work with the 3d printer and pen usage and ideas.

Our advanced components

Our 5 components of our machine are elephant toothpaste, which consists of water and yeast in one cup, and the second cup has dish soap, food coloring and hydrogen peroxide 12. The next component is dry ice, it is hot water with dry ice in it. It creates a foggy mist flowing out of the container. We also have 2 sets of lights with a working light switch. There is one in the back and one on the skull chandelier for decoration. The next component is a go motion data collector for velocity and position. Our last component is a homemade dump bucket with the yeast and water mixture in it.

Sketches



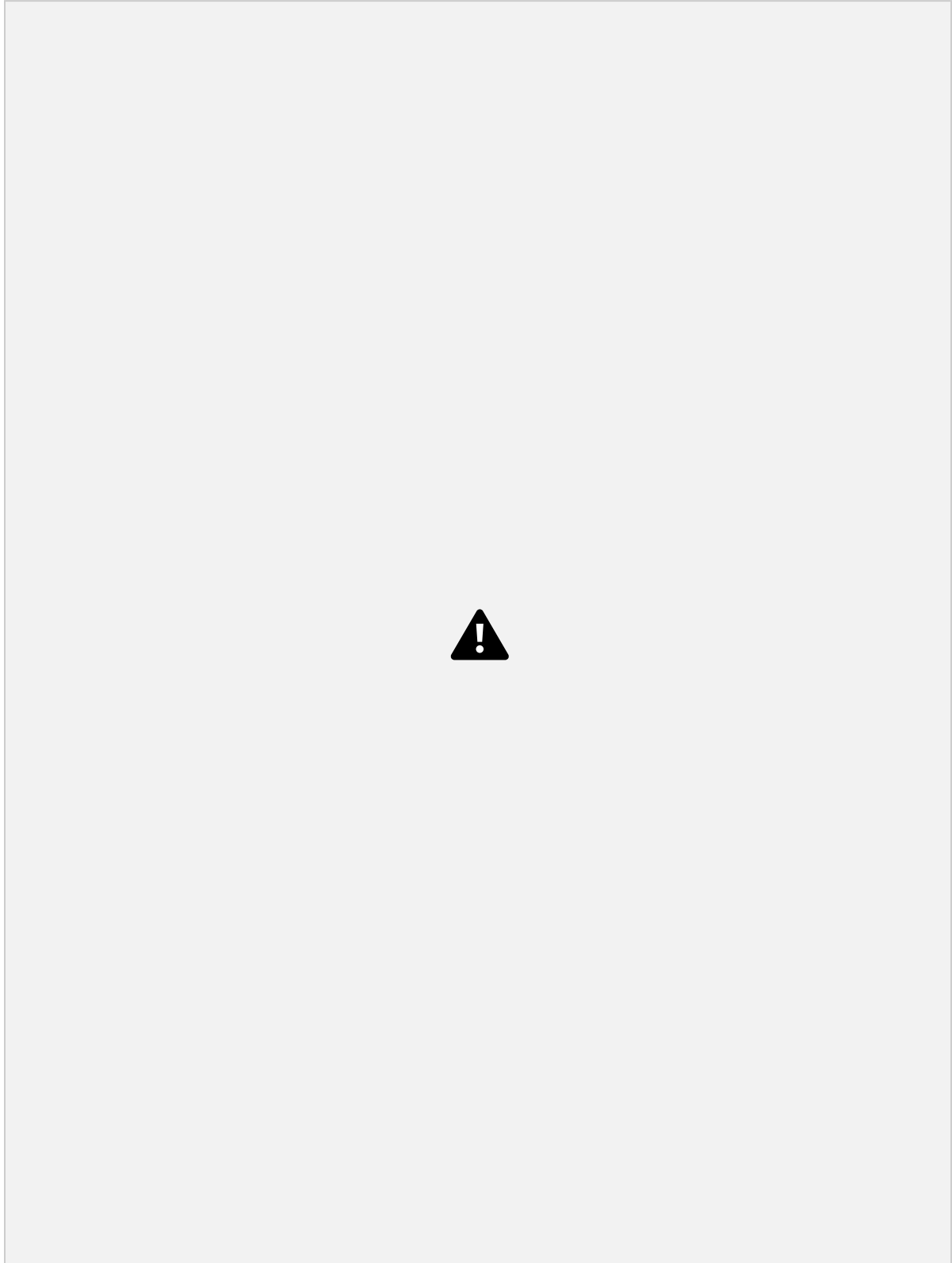




Sketch of final product

Our nearly done project for the first competition

Final Sketch



Final Picture

