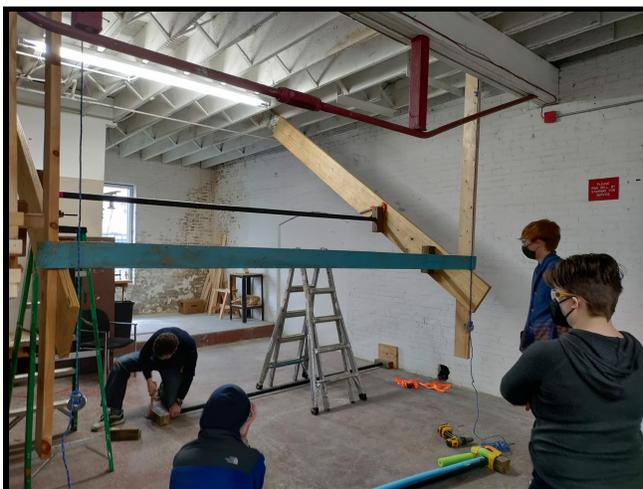
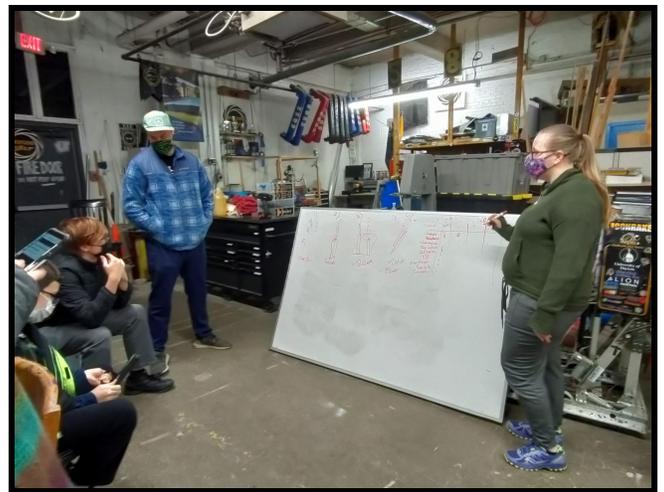


Climbing Mechanism

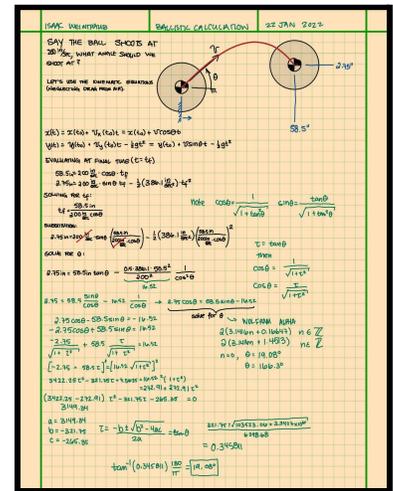
On Tuesday, January 18th, we met back in the shop and were treated to our very own crash course in Statistics! One of our mentors broke down many concepts in Statistics, such as torque, force, and center of gravity, that would be necessary for us to consider during our construction of the climbing mechanism. After our crash course, we then used an engineering matrix to consider different types of climbing mechanisms. Engineering matrices have been tremendously helpful in objectively weighing the pros and cons of different designs that we brainstorm. Our decision was to use a telescoping mechanism, as it can hold the weight of our robot and extend to different rungs with relative ease.



On Wednesday and Thursday, January 19th and 20th, we added details to the CAD of our climbing prototype. On Saturday, January 22nd, we started constructing our telescoping prototype. Our goal is to have it complete before our CDR so we can test for any features and potential weaknesses in its design and include them in our presentation. Upstairs in the shop, our mentors also began constructing a replica of the hangar area for us to test our climbing mechanism with.

Scoring Mechanism

The scoring mechanism team spent the week adding details to our mechanism's CAD and researching on ways to improve our existing prototype. We also researched different scoring mechanisms that shot cargo balls into the lower hub instead of depositing them into the hub. On Saturday, when discussing the positives and negatives of depositing and shooting, we realized that the height of our current prototype was designed to be taller than the lower hub, meaning that our robot would be too tall to drive underneath the lower rung. We grouped together as a team to discuss this new development and decided that in order for us to drive underneath the low rung, we would have to design a lower scoring mechanism that shoots balls instead of deposits them. We went to the whiteboard to find out, given our scoring mechanism's height and distance from the lower hub, at what angle we wanted our ball to shoot from into the lower hub. Finally, we built a platform this week for our prototype to be placed onto, as our finished mechanism will be similarly placed off of the ground.



We are happy with the progress made this week, and we are grateful for all of the insight and guidance our mentors have given us to help achieve our goals!

We want to give a big thank you to all of our sponsors this year! None of this would be possible without you, as your support allows us to continue learning STEM values and to Bring Opportunities Near Dayton Students.

To see more of our progress throughout the season, please follow us on Instagram, Twitter, YouTube, and our official website! Stay tuned!



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