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Zip line water drop challenge

My group and I were put up to the task of creating a contraption to hold a cup a water. This cup of water was to run up and down a zip line and fill up a bucket of water. We thought of making a square type of cup holder that would be easy to take the cup out of. My team started to randomly create cup holders from the materials we got, a bunch of k' nex. Our team investigated what type of cup holders we could build and how each would have it benefits. We had to collaborate, combine our ideas, and reached a conclusion of our recent contraption.

We first thought that the design we made was going to be flimsy and would break but we successfully had the zip line carry the test version of the cup with sand bags as weights across the room. We planned to use connectors as joints to create a rectangular box to hold the cup and that's what a lot of other groups did. We first repeatedly made a box type contraption and we just added on the first design. The final design also had an open side to take the cup out without having to take apart the contraption. The rectangular design of course worked and was the design we kept.

While testing our contraption we found out flaws that the first design had. The first design had problems grabbing onto the carabiner. But we refined the design and chose to have green bendy poles to attach the cup holder to the zip line latch part instead of a weak chain that broke off because of the weight. Not only did the refined design make it easier for us to attach it,

it was lose enough to take the cup out. We stuck to this design and were prepared to put it up to the real exam.

Our first failures were minor testing problems. One of our failures was the carabiner attachment, but we replaced our chain design to a simpler and sturdier design that held up well. Another problem was choosing what design we kept. We contemplated what design we should go with but towards the end we picked the rectangular design. Our successes were finishing the zip line water drop completely and collaborating as a team without any conflict. This type of technology is a fun subject to do in future engineering classes and I promote this project as a project that should and hopefully will be here for the next freshman class next year.