



Career Readiness Online Challenge

VEX IQ

3547K The Dragons

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We chose the STEM profession of a Lego engineer to. We chose Lego engineer because we know and love Legos, and all kids have some Legos and build them. We wanted to learn how they used engineering to make Legos. We gathered information about Lego engineers from the Lego website, you tube videos on how Legos are made by chemical engineers and Youtube videos where kids talked and asked questions to Lego engineers. Kids engineering websites helped us too. Most engineers we read about and watched used the engineering design eight step process.

The Lego professionals engineering design process matches how our team builds and programs our robot and to make it better as we go. We have learned how to use the engineers process to solve real problems in VEX IQ. We used the 8 step engineering process and an engineering notebook to help us.

We do the steps below and usually do the testing and revision steps the most.

Step 1:

We identified a problem with the intake feeders. The problem was we needed a way to pick up the balls from the field. The balls were squishy and about 14mm diameter and we had to think of ways to pick up the balls so they could roll up and into a shooting area.

Step 2:

We researched the problem by watching YouTube videos, talking to successful teams, and we met with a real engineer who helped us on our team.

Step 3:

We had to think about the size of the robot and the pieces and if it would work or not.

Like if we wanted to use a hang on the robot or not. Other ideas were to put a stopper pressure sensor to make the bin not too full and a blocking piece so the intake wouldn't get stuck on the wall.

Step 4:

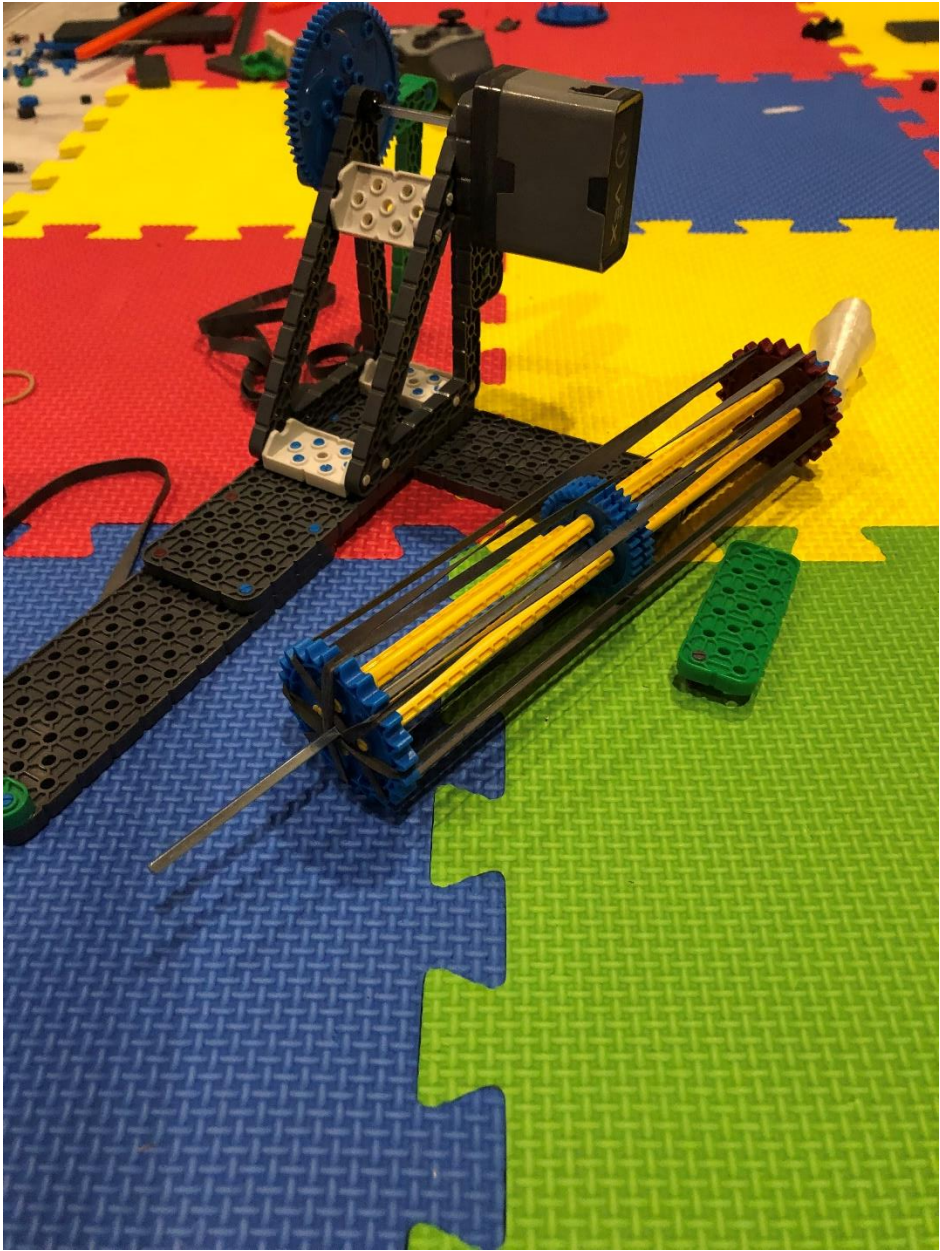
We all talked about the problem we had to solve and everyone talked and we wrote the ideas down- we brainstormed. Brainstorming is when you write down all ideas, even if they sound crazy.

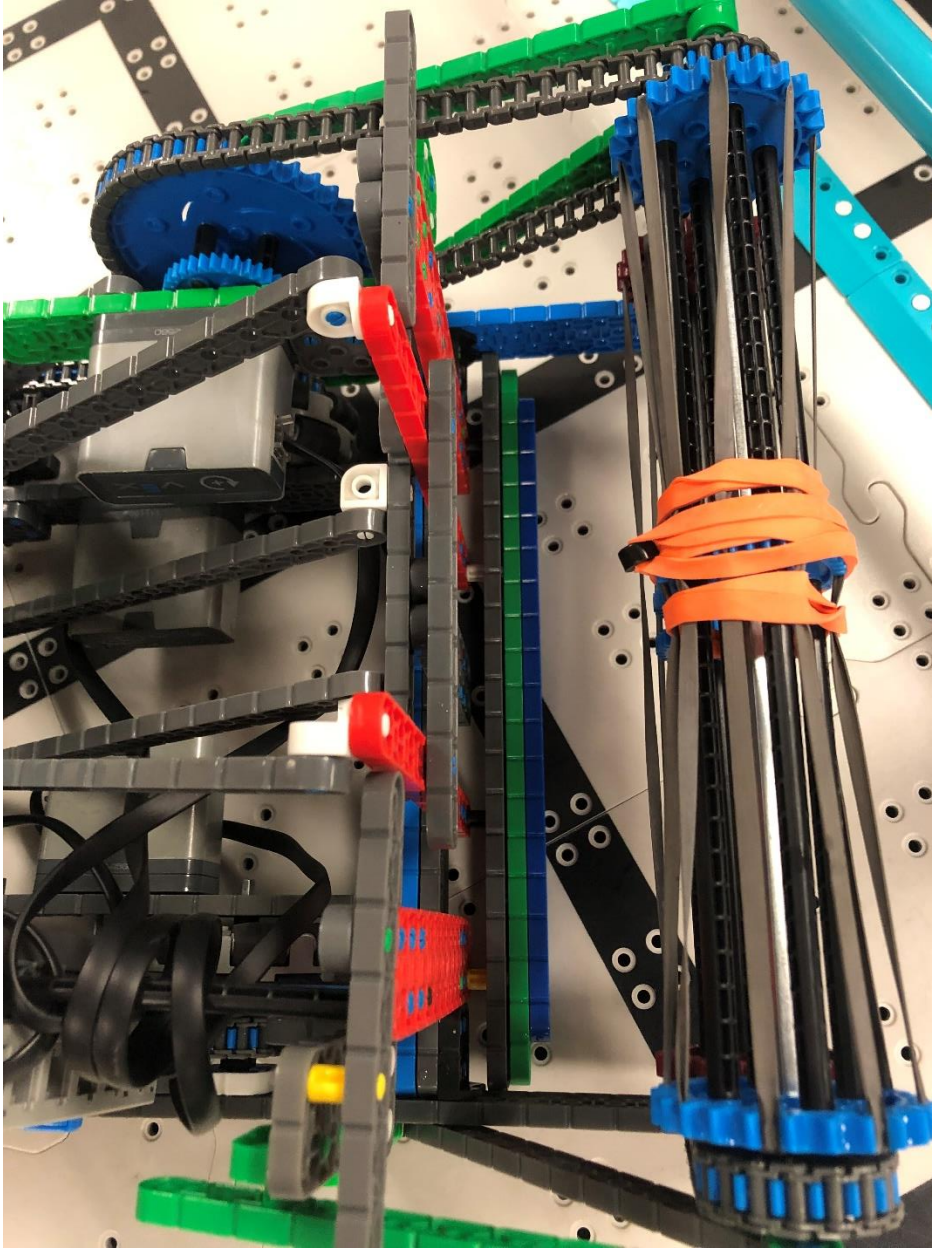
Step 5:

Modeling the best solution was when we put different ideas in place. We used online programming to help us move forward. We used online programs to test the ideas in VR to see if our model ideas would work.

Step 6:

We tested our model in the real field to see if it would work and found out that we had made some mistakes. It turned out great- our intake method. We still use it in competitions. We have had to change it a lot of times though.

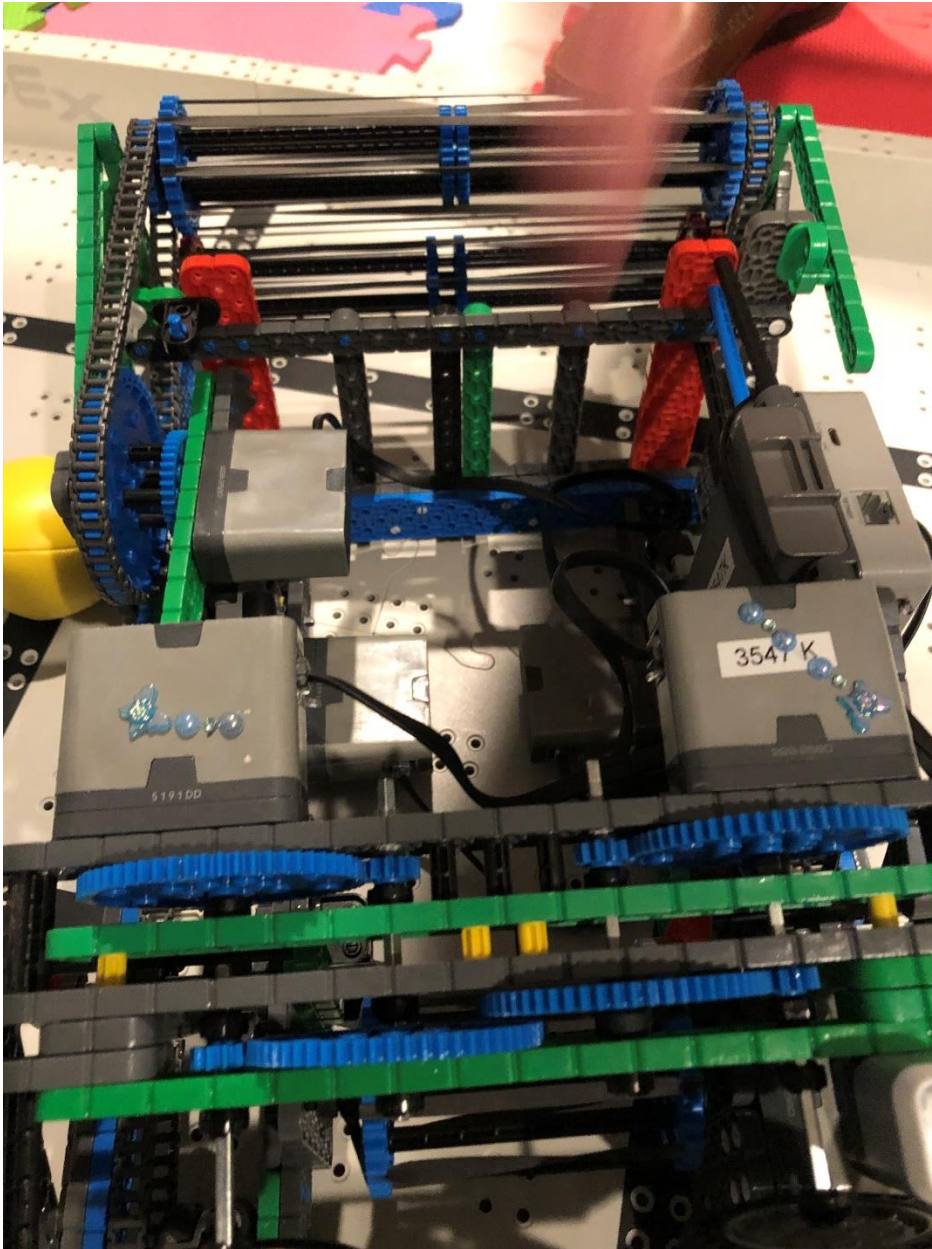




Step 7:

We have had to change the first model a lot. It didn't work well for a long time. We had to change and move things around. We had to add a special chute for the balls, had to add more rubber bands and had to place a little piece on the rubber bands to stop the balls from getting stuck. We have changed it soooooo much, but now we think we have a

good final solution



Step 8:

We have been competing and are doing well with our final solution to the intake feeders.





We have learned how to use the engineer design process to solve real problems in our Vex games. We use the engineering 8 step process and the engineering book helps us with ideas, shows us the mistakes and thoughts we have had and keeps this all together and organized. We can find the best solution. Vex has also taught us how to use a computer program as a tool to make our robot works the best. Vex does more than teach engineering though, it teaches us teamwork, confidence, how to talk with other teams, how to form a strategy, listen to other people's ideas and how to solve problems we see everyday and not just on a computer.

Andy, Myron, Kira and Amy..VEX 3547K- The Dragons!!