



**North Surrey  
Secondary Robotics  
FRC Team 6390  
2017  
Lessons Learned**

## **Advice for Rookie Teams**

As all teams know their rookie year is the biggest learning curve for FRC teams. It is hard to prepare for something when you have no idea what you're preparing for, but there are some helpful things that will help you be the best prepared for the oncoming journey.

As a team we have learned the importance of team bonding. Yes, we had a build season where we all spent 6 weeks together but there wasn't much time to get to know each other. It wasn't until the bus ride to our first competition as a team that we actually started talking to one another. Having team bonding exercises and going places as a team is something we strongly recommend, it will really help when times are stressful and getting the whole experience of being on a FRC team.

Another thing strongly recommended is to start learning early. It is hard to determine what you'll need to learn for the upcoming game, but from experience I can say it is hard to learn as you go. Look up anything and everything you can on FRC, look at other teams and what they have learned or the problems they ran into their previous years. Our first year we had absolutely no idea what we were getting into, nobody really knew anything. So it is highly recommended teams spend some time gathering information on motors, wiring, building techniques, designing and programming especially. Before build season starts you should have a good handle on designing and how your team plans to do it, meaning what program you will use. Part of designing is prototyping, they are both really important to master before build season.

This may seem hard to do on your own without guidance. One of the things that will help you the most is asking questions. Get your team social media accounts and get in contact with other teams. You can ask more experienced teams or if you have a specific question for a specific team they all have a

social media account of some sort. Another option is to check one of the many resources FRC has online. WPilib and Chief Delphi are just two of the many resources you can find online that will probably have an answer to your question. **Team Hephaestus is happy to mentor rookie teams and will support you in any way we can. Please contact us if you would like us to mentor your team.**

Social media is how all teams stay connected. Some teams only have one version of social media and others have a bunch of different accounts. On social media we share

### **Lessons Learned List**

Before Build Season:

- Limited experience, should start learning early
  - Ask questions
  - Find a Mentor Team
  - Online
  - Finances
  - Sponsorship
  - Membership
  - Team building
  - Inside/Outside school
  - Use resources
  - Shops
  - Prototyping (learning)/designing
  - Communication
  - Get involved online/connect with other teams
  - Branding
  - Programming
    - + Know language beforehand
    - + Learn downloading
  - Commitment
  - Team roles and responsibilities outlined

- During Build Season:
- Schedule
- Keep Logs
- Build Practice Bot alongside Robot
- Take measurements
  - Measure speed of Robots
  - Build robot with one type of size screw, washer, etc.
  - Test (Robot)
- Defense/Offense
- Does it meet challenge?
- Double/Triple check Inspection Check-list as you build

For Competition:

- Prep Scouting Team
  - Create Scouting Sheets
  - Create Scouting Spreadsheet
- Pit packing
- Display with Signage
  - Handouts for other teams about your robot
  - Handouts for Rookie All-Star Judges
- Judging Prep
  - Always have someone in pit ready to answer questions
- Robo RIO
- Extra-Extra-Extra Parts
- Have backups (people)
  - Don't want to wait for a specific person
  - Everyone knows how to do everything
  - Spread jobs evenly
- Pit
  - Organization
  - Have shifts
  - Too many people in the pit caused congestion and confusion
- Mascot=good
  - Designated guide to assist the mascot in getting around safely

## Team Challenges

- One of our team's biggest challenges was that neither our mentors nor our members had any previous experience with robotics competitions or with FIRST. We did a lot of research, contacted experienced teams for mentorship, participated in the Ask the Expert Webinar series, studied previous game challenges and committed ourselves to the learning process. We strategically sought out potential mentors with skill sets that would help support the team.
- In BC there are very few FRC teams to provide us with support, so we partnered with the only local veteran team we knew (FRC team 6008 Lions from Surrey, BC) and reached out to a veteran team from Ontario (FRC team 4476 W.A.F.F.L.E.S. Community Robotics from Kingston, ON) to mentor our rookie team.
- We had no funds when we started the team and we needed to create a long-term financial plan for sustainability after our rookie year.
- Not having a regional competition in BC added significantly to the costs of establishing a team, so we had to make fundraising and acquiring sponsorships a priority.
- As an inexperienced team we made a lot of mistakes along the way, but we learned from them and managed to adapt with each technical challenge that presented itself.
- Attracting and maintaining club membership without an actual robot to work with presented challenges. We had to be creative and present practical hands on activities for meetings that were strategic in developing the targeted skills to keep the students engaged.
- Build season timing was in the middle of finals and semester turnaround, as well as in the middle of the flu season, which impacted our team's health when they were already run down and working so closely with one another. This year we also had several snow days

where the schools were closed and we were not able to work on the robot, which put us behind schedule.

- We anticipated that this year would be challenging and many difficulties would be faced. We strived to overcome all obstacles and come out a stronger and better team at the end.
- Our biggest challenges are related to managing the size of our team. As a Rookie team with 35 members, we have had to work hard to find roles for each of our students to keep them occupied and motivated. The size of our team is encouraging, as it means we are providing a vital need to our students, while the interest our team is generating indicates that the size of the team will likely increase in the years to come.
- The greatest challenge associated with our large team are the additional costs associated with having such a big team. We feel it is important to be inclusive and provide each of our students with the opportunity to experience attending and participating in the Western Canadian Regional FRC in Calgary. The reality is that most of our students do not have the financial resources to afford the trip so we are relying on our ability to get enough sponsorship support and cover the costs of their travel. Ideally, having an event in BC would be the best way for BC teams to grow, as more students would be able to participate, and have access to see the event in person, hopefully encouraging new teams to form, and increasing a FIRST presence in the West.

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## **Advice for Financial Planning**

Beyond these initial start-up grants, our team had the added expense of traveling to Alberta to compete in the Western Canadian Regional event. It was important for us that we only use grant funds toward the long-term needs of the team and not towards travel costs. Travel costs will be offset for members by obtaining individual sponsorship and fundraising efforts.

We have been strategic about soliciting smaller amounts of funding from a variety of sources this year rather than risk our applications being rejected. We understand that as a rookie team we do not have an established track record, nor did we have anything to show our investors in terms of an actual robot, so it wasn't an easy sell. Our intentions are to use our rookie year to create some traction and hope that our outreach efforts will create a buzz to attract potential sponsors; this will allow us to have something to show for their potential investment. We are attempting to not only promote our team, but also educate and promote FIRST, as British Columbia does not yet have an established FIRST presence, and most companies we approach have no idea about the program.

It is important to our team not to rely on school district funds to support our team. We do not want to find ourselves in a situation where district funds are reallocated to another department and want to be in control our own destiny. We also wanted to be in a position where we only asked for funds from our school, and our school district, once we received our invitation to the World Championships.

We used a variety of approaches to reach out to potential sponsors including personal connections, parts suppliers, online applications, cold-call emails, phone calls and personal visits.

Given that we won the Rookie-All-Star award on week 6 of competition we only had a few days to organize our travel arrangements and raise the necessary funds to go to the championships so this strategy of not asking our

school or school district for funds initially proved to be successful as they were able to offer us some financial support when we really needed it. We also made sure we had funds on reserve from our sponsorship donations to pay the registration fee for the championships.

### Fundraising

Beyond our sponsorship efforts, we have also participated in two fundraising activities to-date and plan to do more in the off-season.

We offered individual students the opportunity to fundraise in order to offset their individual cost of travel to the Western Canadian Regional Competition in Calgary, AB. This was a “scratch-card” fundraising activity where students could earn up to \$100 in fundraising per scratch-card.

We partnered with the Spartan Smoothie Co. at our school in a cooperative venture where for a designated time all proceeds from the sales would be donated to our team. We plan to continue to run this activity several times throughout the school year.

In the spring/fall we are looking into holding car washes to raise funds, and we are hoping to run spring break camps in 2018 as a fundraising activity as well.

### **We are happy to Mentor Rookie Teams**

**We have learned so much in our inaugural year and want to invite rookie teams to contact us so that we can offer our advice and support to anyone who is interested in our mentorship. Please follow us on social media and contact us directly if you would like us to mentor your rookie team.**

## Team Contact Information

**Team Email:** [robotics.hephaestus@gmail.com](mailto:robotics.hephaestus@gmail.com)

### Social Media

Website: <http://roboticshephaestus3.wixsite.com/robotics>

Youtube Channel: robotics.hephaestus

Facebook page: NSS Spartan Robotics

Instagram: Spartan Robotics

Twitter: @NSS\_Hephaestus

### Administrative Mentor

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