FRC 3929

THE ATOMIC DRAGONS

Executive Summary

Briefly describe the impact of the FIRST *program on team participants with special emphasis on the 2012/2013 year and the preceding two years:*

FIRST provides us with an opportunity to be part of a team of people with common interests. It creates a conduit for connecting our school lessons with real life applications. Our mentors serve as critical role models who show us the value of hard work and commitment in finding success. Because *FIRST* fosters ambition, curiosity, and a sense of community in every member, we gain a sense of accomplishment and the confidence that we can play an integral role in advancing STEM education.

Emphasis on role model characteristics for other teams to emulate:

As a young team, we are just beginning to establish a reputation within the FRC community. However, our team is an excellent example of a team that lacks financial resources, but, through our own ingenuity and creativity, it makes up for the financial deficit and is able to compete on a level playing field with other teams who have larger operating budgets.

Describe the impact of the FIRST program on your team and community with special emphasis on the 2009/2010-year and the preceding two years:

Within our school community, we work toward increasing student participation in our club, and recently, we have been visiting our middle school classrooms to talk about FIRST, and how much enjoyment it brings us. We hold fundraisers such as Middle School Movie Night, that bring parents and students together to have fun and learn about the exciting world of FIRST robotics. We stress the importance of the FIRST spirit- the drive to succeed coupled with an attitude of Gracious Professionalism. We also participate in community festivals and are then able to reach out to kids in the Greater Philadelphia area.

Teams innovative methods to spread the FIRST message:
Our team is based in a large city, which allows us to become involved in citywide festivals. There, we sell our merchandise and spread the word about FIRST. We present our growth through press releases, blog posts, social media, and weekly "vlogs". We manufacture robot necklaces with our team number that are a huge hit in our school and community. This year, we also began a "Bows for Bots" campaign, in which we are selling handmade denim bows to raise local awareness.

Describe the strength of your partnership with special emphasis on the 2011/2012-year and the preceding two years:
We strive to build strong relationships with businesses that support our team. We rely on local businesses to assist us in reaching our goals. We make sure to help them as well, by advertising their logos on our team shirts and merchandise. We have machine sponsors who provide us with custom parts for the robot. It is essential we maintain positive

relations with all the businesses that work hard to support us.

Teams communication methods and results:
Establishing sound communications channels was a priority. We established a Google group to communicate important deadlines, updates, keep a diary record of our progress, and to arrange transportation because our build space is far from the school. Parents, mentors, students, and sponsors are regularly updated through this group. We then created a website, Twitter account, and Facebook page to keep our fans, and each other, updated.

The Atomic Dragons, FRC Team 3929, is a highly diversified group both in ambitions and population. In addition to participating in FIRST Robotics competitions, we strive to create opportunities for students to share and develop their knowledge in Science, Technology, Engineering, and Math (STEM). The atmosphere of camaraderie and support provides an environment where students are able to learn and explore, while simultaneously enjoying the benefits of a varsity-like sport. Our team does more, however, than build robots. We aspire to spread *FIRST*'s goals and ideals through innovative and effective ways, while encouraging our own members to explore STEM. Through participation on our robotics team, we seek to foster curiosity, collaboration, and team building, with the goal of inspiring students to pursue careers in the fields of science, technology, engineering, and mathematics.

History

Our team was formed in September 2011 at J.R. Masterman Laboratory and Demonstration School in Philadelphia, PA. We decided to aim high from the beginning and make it our goal to field a rookie team in the 2012 *FIRST* Robotics Competition. We set out to find money, mentors, tools, and a space to build. Fortunately we had ready access to a consortium of engineering students from Drexel University and the University of Pennsylvania anxious to provide expertise. We received rookie grants from Boeing Company and jcpenney. We also host many in-school fundraisers. We could not build at Masterman High School as there was no available space, and without a build space we could not compete. Our priorities were to locate a build space, raise additional funds to

pay for tools, materials, and operating costs, and find as many in kind donations as possible. We were under an enormous time pressure to be ready to build by January 7th. Through our own ingenuity and single-mindedness, we finally found a landlord who agreed to donate temporary space until the end of April.

We were awarded our first Rookie All-Star Award of the season at the Chestnut Hill district competition. Our next competition was the Mt. Olive District Qualifier. There, allied with 25 and 222, we won the event. We also won the Rookie All-Star Award capping an exciting weekend. Our next event was the Mid-Atlantic Regional Championships at Temple University, where we graciously received the Rookie All-Star award for the third time. This award qualified us for Championships in St. Louis. Due budget constraints, we could only afford to send a core team of 14 students. On the last day in St. Louis, the Rookie Inspiration Award which only inspired us to return home and work hard to establish a robotics tradition at out school.

In the spring of 2012, we made the transition from a 4H team to a school-based team, drastically changing our team's structure. Because of our success during our rookie season, Masterman offered our team a small space in which to build our robot in the coming years. This helped to further strengthen the partnership with our school and make it easier to get more kids excited about FIRST. Over the summer, we held workshops on programming, CAD, and VEX. These helped train new and returning students for the coming season.

When the school year started in September 2012, our team started recruiting new members and organizing weekly meetings. After a series of mentor-led workshops, our team split into sub-teams and started organizing student-run meetings. We spent the month before kickoff building a machine shop in our new home, room 10, in the school basement.

Outreach and Marketing

Since we are a relatively new team, our focus is on building awareness of our team in our school community. Currently, we are assisting our middle school students and faculty to put together a middle school team. During the off -season, members of our team will help them become familiar with engineering concepts and techniques. Not only

does this help spread STEM education, it also helps ensure the sustainability of our team. However, we also feel it is important to expand STEM outside our school community.

During our rookie year, our team worked with ODM Group, a local PR firm. The ODM group kept the Philadelphia community apprised of our progress. This partnership with the ODM Group led to articles about our team in the Roxborough Review, the Philadelphia Inquirer, and Technically Philly. Public service announcements, organized through ODM, featured prominent Philadelphians such as the President of the Greater Philadelphia Chamber of Commerce, speaking about the benefits of STEM education.

One of our largest sponsors is jcpenney, and last year, our team decided to show gratitude for the generous donations by getting involved in jcpenney's community service efforts. Through the Angel Giving Tree program, we raised enough money to aid 19 underprivileged children and senior citizens during the holiday season.

We hold many school and community fundraisers throughout the year to help defray our operating costs. Last year we designed and manufactured acrylic robot necklaces that are proudly worn by students of all ages from our school and local community. Last year, in St. Louis, Team 399 gave us permission to sell our necklaces at their annual event, RoboProm. This arrangement was so successful that we agreed on a deal, ensuring that we can continue to sell our merchandise at future RoboProms. This year we introduced a "Bows for Bots" campaign. We created denim bows from recycled jeans, and attached them to pins, hair ties, and clips. Selling team merchandise brings critical funds but also gives us a conduit for spreading the message of FIRST.

We have introduced FIRST to the arts community by creating a partnership with Art Star, a local art store that carries the work of local artists. Art Star takes a portion of the profits it makes from the pieces it carries, but in our case, the owners of the store gave us all the profits made from selling our robot necklaces in her store.

Based in Philadelphia, our team is located in the middle of a large engineering community. For the last two years, our team has been lucky enough to find mentors from local companies and universities, such as the Boeing Company, the Navy, the University of Pennsylvania, Drexel University, and Temple University. Last year, our team partnered with NextFab Studios, a local machine shop. NextFab not only gave us access to their tools, they also trained a few of our students to use CNC machine tools such as

mills, lathes, and laser cutters. Through one of our mentors, Penn robotics professor CJ Taylor, we were granted weekend space at Penn's GRASP lab, one of the premier robotics labs in the country and the home of the nano-quadcopter..

Social media is key in our campaign to spread robotics and STEM education to young people. We maintain an active website, Facebook page, Twitter account, and produce weekly video logs. These serve to keep the community updated about both our event schedule and our build season.

One of our most important goals is to inspire younger children to develop an interest in STEM fields. We do this through robot demonstrations and community appearances that include the Philadelphia Science Carnival, a component of the ten-day Philadelphia Science Festival. Thousands of people attend the carnival and last year, our booth was among the most popular. Our main attraction was our robot, which we drove around and launched balls for young children to catch. While our robot captivated the children, team members had fun talking to the hundreds of older visitors who were curious about this wonderful program called FIRST. We also attended Mt. Airy Day and the Schuylkill River Park Fall Festival, two local festivals. Not only do these events help to inform the community, but they also serve as sources of revenue for our team.

Fundraising

Each year, our team works hard to raise the funds needed to participate in FRC. In addition our merchandise sales, we also rely on grants, corporate sponsors, and small businesses for financial support. We also host fundraising events in our school and community that help promote our team.

In our school neighborhood, there is a wide range of small businesses that recognize Masterman students and faculty as frequent and valuable customers. Because we are so familiar with these venues, we look to them for support, sending out groups of students to solicit donations. Using this method in our own neighborhoods and throughout the city, we are able to acquire donations from numerous small businesses while educating them about FIRST. Along with small businesses, our team continually seeks corporate sponsors for funding. One of our long-term goals is to develop a perennial non-grant sponsor.

In order to involve more Masterman families, we partner with Applebee's to host an all-you-can-eat pancake day where a portion of the profits went to our team. Our team has a great time bonding over serving pancakes, bussing tables, washing dishes, and greeting guests. This year, we held a movie night for fifth and sixth graders at our school. During the holiday season, we were able to secure our school's auditorium and screen the movie "Elf" to the younger kids and their families. We also sold refreshments and our team's merchandise. During intermission we gave a robot demonstration and talked about our team and our passion for FRC.

Although we are called a robotics team, we do so much more than build robots. We inspire, we educate, we motivate, and we encourage students to do all they can to become an integral part of tomorrow's society. Our overall goal is to create excitement in our community and to develop student interest in science, technology, engineering, and math, thus ensuring a brighter future.