

Team 2036: The Black Knights



Team Handbook

Overview

The Black Knights is the high school robotics team operated out of the Solid State Depot. Every year, The Black Knights compete in the FIRST Robotics Competition (FRC) as Team number 2036. This document lays out the policies and procedures that govern The Black Knights. All team members are expected to be familiar with the contents of this document and to abide by the policies within.

Welcome and History

Introduction

This Handbook is intended for prospective and current team members of The Black Knights; this document provides the necessary information to understand and participate in the FIRST Robotics Competition.

Please read this document carefully and share the information with your parent or guardian before filling out the paperwork.

About FIRST and FRC

The non-profit organization FIRST (For Inspiration and Recognition of Science and Technology) is devoted to providing opportunities for students to engage in Science Technology Engineering and Math (STEM). Since 1992, FIRST has hosted the annual First Robotics Competition (FRC) for High School students around the world. FRC tasks teams of high school students to design and build a robot. In 2016, there were 3,140 FRC teams that competed with more than 100,000 total students from 26 countries.

About Solid State Depot and The Black Knights

The Black Knights originally formed in January of 2007. The Black Knights were the second team founded in Boulder CO, after the success of the Team 1157: The Landsharks from Boulder High School. The team originally operated out of Boulder High School's shop, moved to Fairview High School in 2013, and moved to the Solid State Depot in 2019.

The Solid State Depot has been a non-profit makerspace in Boulder CO since 2009. SSD is a community run shared workspace devoted to STEM education and community engagement. SSD is primarily funded thru membership dues of its over 75 members.

Every year The Black Knights raise approximately \$15,000 to compete in the FRC competition, and perform community outreach and STEM education to the Boulder community.

Competition Information

The FRC Competition is a complex event that includes more than a dozen different awards, regional and championship events, a different game every year, and multiple seasons and schedules. Understanding the information below is critical to your success as a team member.

FRC Explained

FRC is an annual robotics competition that tasks teams with building a 120 pound mobile robot to compete in some form of organized game. Each year the game changes so that students have to design and build a wholly new robot to meet that year's challenges. The game for each year is announced at the *Kick-Off* which marks the start of the build season. From the time the game is announced, students have just 12 weeks to design, build, and test their robots before taking them to compete at a regional event.

Regional events are held around the world, the nearby regionals include: Denver, Salt Lake City, Oklahoma City, and Flagstaff. Each event occurs over the span of 3 days which include practice matches, qualifying matches, a final tournament and an awards ceremony. Team are able to compete in multiple regional events, and depending on their performance at those events, teams can qualify to attend the FIRST World Championships.

The FIRST World Championships are held in two locations, which event you will attend depends on your team's geographic location. Each event will have around 300 teams and all of the events of a regional or district event will be repeated at championships. The awards for which teams compete all have regional and championship versions, and teams are eligible to compete for the award at championships if they win the award at a regional, and qualify for championships.

The Build Season

Build Season Overview

Starting in January and continuing throughout March, team members have a very short time window to design, build, program, and test their robot. The build season starts the second Saturday of January, when that year's game is announced at the *Kick-Off*. The students then have roughly 10 weeks to complete their robot before the Denver regional. The specific week of the Denver regional moves year to year.

Build Season Schedule

During the build season the team meets 4 times a week:

- Monday, Wednesday, Friday: 6:30 - 9:00
- Saturday 10:00 - 2:00

It is strongly requested that team members attend all meetings.

Build Season Parent Support

Parents are asked to understand that FRC build season is a stressful and dynamic processes. The build season meetings, especially near the end of the season, tend to run late unexpectedly. We ask parents to please bear with us when schedules suddenly shift and to help in coordinating transportation of team members. Parents are encouraged to plan carpools ahead of time, and our mentors are available to support in transportation if necessary.

The team provides snacks and refreshments for the team during build season meetings. Local restaurants and stores sponsor the team by providing some food, but the teams asks for parent support in providing additional meals, baked goods, or packaged snacks for team members. If a parent is willing to support, please contact the team to coordinate.

Regional Events

The Black Knights compete every year in the Denver Regional, which is held at the Ritchie Center on the University of Denver Campus. Additionally, the team attempts to fundraise enough each year to attend a second regional; this is typically the Utah Regional held at the Maverik Center on the University of Utah Campus. The 2020 dates are TBD. Each regional event spans 3 days, Thursday - Saturday. On Thursday, teams set up their pit areas, get their robots inspected, and conduct practice matches to ensure that everything is functional. Friday is the qualification round of the regional, teams will compete all day in qualification matches that will determine a team's ranking. On Saturday morning the remaining qualification matches will be played, then a draft pick process will occur where the highest 8 ranked teams each select 2 alliance partners for the final tournament. Only 24 of the ~60 teams that attend a regional will qualify for the final tournament. Saturday afternoon the final tournament will be played and then the awards and closing ceremonies will be held.

The regional event schedule and school calendar shift relative to each other each year. Typically the Colorado regional occurs the week after spring break, but this changes year to year. Captains and leads are expected to attend regionals, and students are asked to plan ahead to make sure there will not be conflicts with the regional timings. FIRST typically announces regional dates for the following year in October.

Regional Team Member Expectations

Team members that wish to attend a regional event are expected to have completed all required paperwork for membership, participated in the FRC build season, meet academic eligibility requirements, and be in good standing with the team and Fairview High School administration. While at a regional event team members are ambassadors of The Black Knights and expected to strictly adhere to the team *Code of Conduct* and to exercise maturity and good judgement. All students must additionally complete the FIRST waivers for the competition event, and register with FIRST's Student Team Member Information System (STIMS).

For the Denver regional team members will travel back and forth between Denver and Boulder each day. Transportation will be coordinated prior to the event. Team members who wish to attend the regional are expected to attend all 3 days and must notify team leadership and mentors if they will be unable to attend some portion of the event; Additionally, team members are not permitted to leave the regional early or arrive late unless previously arranged. A team check-in/check-out system will be in place at the regional and team members must strictly adhere to these policies.

For the Utah regional or other overnight events, similar standards are held to the Denver regional. Those traveling to Utah are **required** to attend all 3 days, and members must check in/out with the system and must strictly adhere to these policies. Depending on team fundraising success students may be asked to pay a fee to attend travel events, this fee help to cover transportation and hotel costs for the team. Students will need to pay for lunches and dinners while attending overnight events and should carry pocket money to do so. The exact details and requirements for attending an overnight event will be announced to the team when the decision to attend the event is reached.

Parent Support at Regionals

Parents are strongly encouraged to attend regional events and see the hardwork and dedication their students have contributed to the team. Parents are especially encouraged to attend Saturday for the final tournament and awards

ceremony. FRC events are open to the public, and parking and event information will be sent home with team members before the event.

Parents are asked to consider chaperoning or helping supervise regional events. Regionals are large complex events and parent support goes a long way to ensuring that a regional runs smoothly and safely. Please contact the team if you are interested in supporting the team at an event.

FIRST World Championships

The 2020 FIRST World Championships will be held (DATES TBD), in Houston, TX. The Black Knights' 2020 team goal is to qualify and attend the world championships, the last time the team attended worlds was 2010. The FIRST World Championships Houston event will host around 300 FRC teams and over 50,000 total attendees. Qualifying for worlds is a major team accomplishment, at most 6 of the approximately 60 teams that attend a regional will qualify for worlds. Attending and succeeding at worlds requires enormous team commitment and coordination.

Safety

Safety is the highest priority of The Black Knights. Manufacturing and operating an FRC competition robot requires students to interact with machinery, machine tools, high voltage electronics, and chemical batteries. The following policies are in place to ensure that all team members remain safe and follow best shop practices.

Violations of any team safety policy may result in immediate expulsion from the team-- there is a zero tolerance policy on safety violations.

General Team Safety

We believe that safety within an organization comes from a culture of safety. Our team has established a framework for safety leadership in all aspects of our program and all team members are held to the highest standard of safety. The following general safety policies are expected of all team members:

- The FRC Safety Manual outlines core safety principles that all teams should follow. All team members are required to read this manual and follow all rules within it. The 2017 FRC Safety Manual is available from this link:

https://www.firstinspires.org/sites/default/files/uploads/resource_library/frc/team-resources/safety/2017/2017-safety-manual.pdf

- The team *Safety Captain* is responsible for ensuring the safety of all team members. All team members will comply with any policies and directions provided by the safety captain at any time.
- All team members are responsible for safety, and are required to speak up when they see unsafe behavior. Your teammates' safety is in your hands; don't be silent.
- Before participating in an FRC build season meeting or competition event all students are required to attend a *Basic Safety Training Course* provided by one of the Team Mentors.
- For all machine tools, before operating that equipment a student must have taken the Training to operate that equipment by a team mentor. *Only mentors can certify team members to use aforementioned machine tools.*
- All shop tools are color coded according to the following scheme:
 - Green: Must have passed Basic Safety Training to use. Includes: hand drills, dremel tools, non-power tools, 3D printers.
 - Yellow: Must have been trained on that type of machine. Includes: band saws, scroll saws, drill presses.
 - Orange: Must have been trained on this specific machine. Includes: CNC Mills, Lathes, Table Saw.

Machine Shop Safety

The machine shop is where all of the fabrication processes for the robot will be performed. It is the most dangerous area team members will encounter and as such within the machine shop the following policies are ***always*** in effect.

- ANSI Z87.1 certified safety glasses or goggles must be worn
- No loose or baggy clothing may be worn
- No clothing with dangling strings or frayed edges may be worn
- Closed toed shoes must be worn
- Long hair must be pulled back and prevented from falling forward
- Additional appropriate safety equipment will be worn depending on operations being performed
- No aerosols, paints, or other products requiring substantial ventilation will be used within the machine shop
- All students are expected to use basic common sense. No running, climbing on tables, cart surfing, or general horseplay will be tolerated.

Membership

There are expectations for membership in Fairview Robotics that all team members should comply with. While there are no prerequisites for participating in Fairview Robotics, membership can be a serious commitment. Participation is highly valued in the team, even if you cannot attend all the meetings.

Membership Requirements:

- **Team members must maintain academic eligibility.** Participation in the Black Knights is an extracurricular activity. School always comes first, and students' are responsible for maintaining their GPA.
- **Team members should attend all meetings whenever possible, including preseason meetings.** The success of the team depends on students being able to regularly attend meetings.
- **Team members must take the Basic Safety Training Course.** Before the start of the FRC build season (first week of January) all team members must complete a shop safety course (see above).
- **Team members must complete all team paperwork and submit it before the first week of January 2020.** The required paperwork is attached at the end of this document.

Code of Conduct

The Black Knights depend on every member to conduct themselves in a professional manner. All team members need to strive for excellence for the team to succeed. The following codes are guidelines and expectations that every team member should work to meet.

- **Rule Zero.** Rule zero is simply “don’t make us make more rules.”
- **Positive Behaviour.** Participating in an FRC team is a stressful and sometimes difficult experience. Team members are expected to remain positive under adversity and be a role model and ambassador for our team and community at large.
- **Ethics.** No team member will cheat or advocate cheating. No team member will attempt to gain unfair advantage through any means, or advocate doing so. Gracious Professionalism and Cooperation are tenants of FRC and of The Black Knights.
- **Personal Responsibility.** Team members must be able to rely on each other to complete assigned tasks and responsibilities. From junior team members to

leadership, all team members should take their assigned duties and deadlines seriously, and ask for assistance if they are struggling.

- **Respect for Workspace.** All team members are expected to maintain and clean the team facilities and work areas. Team members should work to clean up after themselves and leave the shop clean.. Team members should respect that the team space and tools are donated by the community at large and work to preserve and maintain them.

Mentors

Mentors are adult community members that supervise and train team members. Mentors are faculty members, parents, and volunteers that choose to spend their free time helping The Black Knights. Some team mentors are BVSD cleared to supervise students and have keys to the lab and machine shop. The team mentors are responsible for overseeing team fiscal business, coordinating with FIRST and school administration, and for submitting students for the *Dean's List Award*. All team mentors must complete FIRST's *Youth Protection Screening*, which provides a complete background check.

Parents

Parents are critical to the success of The Black Knights. Parent volunteers are key to all areas of FIRST, and all parents can support the team in achieving its goals. We rely on parents for transportation, motivations, and dedication of their students. Parents have several opportunities to help support the team including:

- Providing transportation and carpools for students
- Providing baked goods or meals during the build season
- Helping out at outreach programs
- Chaperoning or helping to supervise at competition events
- Helping to fundraise (including employer sponsorships)
- *Parents are asked to please consider becoming a mentor to help in some area of the team's development:*
 - Business and Entrepreneurship
 - Mechanical Design and Engineering
 - Software Design and Programming
 - Graphic Design
 - Digital Animation

College and Career Opportunities

FIRST Robotics and FRC are some of the most recognized and respected programs in college admissions for STEM fields. FIRST has an extensive alumni network and keeps detailed statistics of the impact of FRC. Students that participate in a FIRST program are twice as likely to major in a STEM field. 41% of students who participate in a FIRST program Major in engineering. There are more that \$50 million dollars in scholarships exclusively for FIRST students from more than 200 providers. For more information about scholarship opportunities from FIRST, visit this link: <https://www.firstinspires.org/scholarships>.

Within FRC you'll have the opportunity to learn practical engineering, business, and communication skills. Students have the opportunity to become a leader of a dedicated hard working team of inspired team members. The Black Knights and the FRC are the ultimate STEM training ground.

Contact Information

Meeting Location:

Solid State Depot
1965 33rd St.
Unit B
Boulder CO, 80302

Emergency Contact

Cater Schultz (Mentor)
Cell: 307-631-8060
E: CarterJSchultz@gmail.com

Slack: <https://fairviewrobotics.slack.com>

The majority of direct team communication occurs within our Slack organization.

Students, Mentors, and Parents can be invited to join our slack organization by e-mailing: fairviewrobotics@gmail.com

Social Media:

Facebook: <https://www.facebook.com/fairviewrobotics/>

YouTube: <https://www.youtube.com/user/FairviewRobotics2036>

Instagram: <https://www.instagram.com/fairviewrobotics/>

Twitter: <https://twitter.com/FHSKnights2036>

Github: <https://github.com/fairviewrobotics>

Team #2036 - The Black Knights 2020 Student Application



PART I General Information

Digital versions can be e-mailed to:

FairviewRobotics@gmail.com

Student's Name: _____
 Student Cell#: _____
 Student Email: _____
 School: _____ Grade: _____
 Date of Birth: _____
 Years of Experience: FLL ____ FTC ____ FRC ____
 Student T-Shirt size: _____

Parent / Guardian Name (1): _____ Relationship: _____
 Address (1): _____
 Parent (1) Cell#: _____ Home phone (1) #: _____
 Parent (1) Email: _____

Parent / Guardian Name (2): _____ Relationship: _____
 Address (2): _____
 Parent (2) Cell#: _____ Home phone (2) #: _____
 Parent (2) Email: _____

Team #2036 - The Black Knights 2020 Team Handbook Packet



Part III Consent and Release

TEAM FEE

- A Team Fee of \$50 is required and must be submitted before the build season begins. This fee covers each students Personal Protective Equipment (safety glasses, gloves, hearing protection), and T-shirt.
- Checks can be made payable to “Solid State Depot” with memo “2036 Team Fee”

PERMISSION TO PARTICIPATE

I give permission for _____ [student's full name] to participate in The Black Knights for the 2020 FIRST Robotics Competition (FRC) season. My child will adhere to the code of conduct outlined in the Team's Handbook.

I also agree to indemnify and hold harmless Team 2036: The Black Knights, and/or Solid State Depot its board members, officers, agents, and employees from and against all claims, losses, costs, damages, expenses, attorneys' fees and liability that any of them may sustain (a) arising out of my child's failure to comply with the criteria as outlined in the Team's Handbook, or (b) arising out of any damage or injury caused by my child.

PRINTED NAME - Guardian _____

SIGNATURE - Guardian _____

DATE _____