

Team Handbook 2011-2012



We laugh a lot

We include everyone

Teamwork

Use power tools!

Welcome to our big purple family!

We wear cool hats.

Work side by side with university students and industry mentors

Community outreach

Make friends from all grades!

Travel for competition

Learn new skills!

FIRST Robotics



FIRST stands for "For Inspiration and Recognition of Science and Technology". It is an international program with an aim ***"To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders."***--Dean Kamen, Founder

Our mission is to inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

K-Botics FIRST team 2809

We are an FRC team, started in 2009 out of K.C.V.I. Our team works year round to develop our skills and sense of cohesion. Our team is supported by a dedicated group of mentors made up of Queen's university students and staff, K.C.V.I. teachers and parents.

Our goal each year is to build a successful robot, make an impact on our community through a variety of outreach initiatives and present an effective Chairman's presentation.



Team History

2011-Logomotion

- Engineering Inspiration Award (Toronto)
- Controls Award (Toronto)
- Engineering Excellence Award (New York)
- Finalists (New York)
- Competed at the World Championships (St. Louis)

2010-Breakaway

- Semifinalists (Pittsburgh)
- Quarterfinalists (Toronto)

2009-Lunacy

- Rookie All-Star Award (Toronto)
- Competed at the World Championships (Atlanta)



Website and Communication

Our team keeps in contact with the public by using our website (www.kbotics.ca). Our blog is updated frequently with pictures and descriptions of our activities.

We have a team Facebook group and email list for our participants and families. Checking email daily, particularly during build season, becomes very important. Our team twitter @frc2809 is active during the season, and also at competition depending on availability of internet.

Interested photographers and bloggers should join the communication sub team.

Mentors

K-Botics is pleased to have many mentors that help out with all aspects of the team, from organization to robot design, from manufacture to game strategy. High school students work side by side with Queen's students, teachers, engineers and technicians to accomplish the season's goals.

Mentors are an important part of our team. They bring their technical, and non-technical expertise, a passion for FIRST robotics, and the dedication to working with high school students and showing them the hands on application of the science math and technology that is learned in classroom.

All mentors have a CPIC (police check), and are dedicated to making sure that teammates work together well and stay safe throughout the season. They also help to keep things fun.

Some of our graduating students go to Queen's and return to mentor our team.



Sponsors

Without the financial contributions and material donations by our many sponsors our team could not compete at such a high level. Sponsors are invited to kick off, to tour our workspace, and to come to competition.

Our major sponsors are Queen's University and Transformix Engineering, who have supplied us with money, mentorship and space to work over the past three seasons. We are very thankful to them for their continued support of our team.



We are always looking for more financial and material contributions. Please bring us your ideas!

Season outline

Preseason

K-Botics meets in the fall from 2:45 PM to 6:00 PM on Thursdays. Skill building with design, CAD, prototyping, and manufacturing is one focus, and putting on a FIRST LEGO League tournament for local teams is another. Throughout the pre season and build season we write and prepare a presentation for our Chairman's report submission. We welcome new members to join us throughout the year, but it is best to join at the beginning of the season to learn everything with the rest of the team.

Kickoff

In early January we meet to watch the international webcast of the challenge for the season. We bring potluck lunch and snacks and spend the afternoon going over the rules, understanding the game, and deciding what functions to put on our robot. Prototyping continues on Sunday; this weekend is when a lot of important robot decisions are made.



Build season

This is the frantic six weeks where we implement our plans made during kickoff weekend. We meet daily except Sundays, and work quite late. To accommodate our late nights, parents and other supporters have been extremely helpful signing up to provide team dinners and Saturday lunches.

Attendance is important during build season; there are many tasks to accomplish, and very tight timelines. If people don't come regularly, they will be very out of step with the build process, and they won't get as much out of the experience.

On ship day, in late February, the robot will be bagged and tagged and not worked on again until it's at the competition.



Competition season

K-Botics goes to at least one regional competition each season. The competitions take three days plus travel time.

For competition the team is split into groups.

The **drive team** is comprised of *driver* (moves the robot) *operator* (performs robot functions) *human player* (puts game pieces into play) and *coach* (advises the driver and operator of strategy).

The **pit crew** (usually 3 people) works in the pit area charging batteries, tuning up the robot between matches, tweaking programming, and talking to judges about the robot design features.

The **pit scouts** interview each team in the pit and write down details about the robot and the team. They also photograph various robot features for use in later scout meetings.

The **match scouts** (6 people at a time) watch each match, focussing on the performance of one robot each. They fill in a sheet which gets entered into a database to be used at later scout meetings.

The **dancing and cheering squad** (off duty scouts, parents, mentors etc) ensure that our section in the stands is full of enthusiastic dancing and cheering K-Bots.

The **chairman's presenters** give a 5 minute presentation about our team's outreach activities and efforts to spread FIRST robotics in our community before a panel of judges.

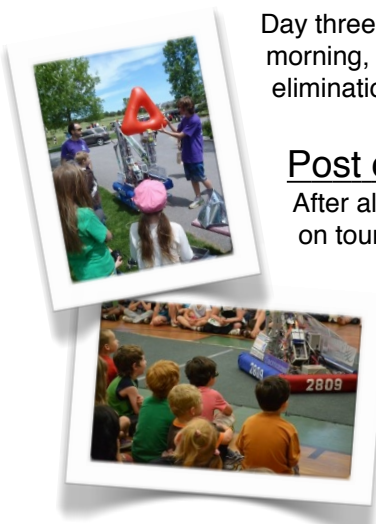
On the first day of competition the pit area is set up, the robot is unbagged and inspected then it takes to the field in practice matches while match scouts practice watching for game strategy and robot performance and filling out scouting sheets. Pit scouts do much of their work this day.

Day two of competition is for round robin play. Competition is intense! The evening of day two is when the scouting meeting takes place. Each team must compile a list of their top 24 teams that they would pick to be on an alliance with for the elimination rounds.

Day three of competition is the end of round robin play in the morning, culminating in the alliance selection before lunch, and elimination rounds (best of 3) in the afternoon.

Post competition

After all competitions are over for the season, we take the robot on tour to elementary schools and our sponsors. We evaluate our season and make decisions for the next year, and have a final extravaganza to thank sponsors, mentors and families and to congratulate everyone who is graduating.



Expectations

Students

Attendance

Students should attend as many workdays as possible. Drive team, pit crew, lead scouts, and our travelling competition team are all chosen from students who have good attendance, teamwork and dedication.

Participation

Simply attending is not enough. Each student must make a significant contribution to the team while they are there. Students should show willingness to learn new skills and help others with a positive attitude. After completing a task clean-up is very important!

Leadership

Students are expected to take on a leadership role once they are comfortable. The opportunities range from teaching others new skills, to initiating community service projects and outreach, planning presentations, and organizing the FLL tournament.

Behaviour

Because we work so closely together during a very stressful build season, it is imperative that we are respectful to each other. Positive and inclusive communication helps build a highly functioning team.

Academics

During build season it is important to keep on top of your studies. If teachers have concerns about your attendance, efforts, or achievements in class they will talk to Mr. Wood or Ms. Bearse about it. Consequences of poor academic efforts may include completing homework at robotics before starting with team activities, or restriction from team trips and activities.

Parents

We generally have a meeting early in the pre-season to explain about the team and our season and goals. It is expected that a parent/guardian attend that meeting to get to know other parents, and get involved in our big purple family.

Parents are invited to kick-off and other special events (like parent appreciation night) and open houses during the season. Invitations will be sent out by email or in paper form. Parents are welcome at any time to observe our progress.

During build season, when the team is working late, parents sign up to bring food for the team once or twice during the six weeks, and eat with us, the big purple family. This prevents the team from ordering pizza every night! Team dinners became something that we really look forward to.

From time to time we might need parents to drive to and from warehouses, machine shops, or competitions or demos. Parents are most welcome to join us on any occasion. It is recommended that parents come to at least one day of competition to see why we put in the long hours all winter.



SubTeams

K-Botics members are divided into several sub teams. Members are usually part of two or more. There are many tasks to get accomplished, so the workload needs to be split up, and members need to take ownership of their jobs, and finish them well in a timely manner.

These are the task groupings:

Communications

- Website, blog, photography,
- newsletters
- KCVI announcements
- thank you notes

Marketing and Business

- Sponsor relations
- Fundraising
- Sponsorship package updates

Animation

- Complete the required animation challenge of the season

FLL

- Mentor local FLL teams
- Coordinate the FLL tournament in the fall

Programming

- Logic/sensors
- Writing and debugging code
- Beta testing software

Chairman's team

- Write and present the chairman's essay
- Create the Chairman's video

Build

Design

- Functionality of robot

CAD

- Drafting parts for manufacture

Electrical

- Wiring of circuits and sensors

Manufacture & Assembly

- Machining parts
- Assembling robot