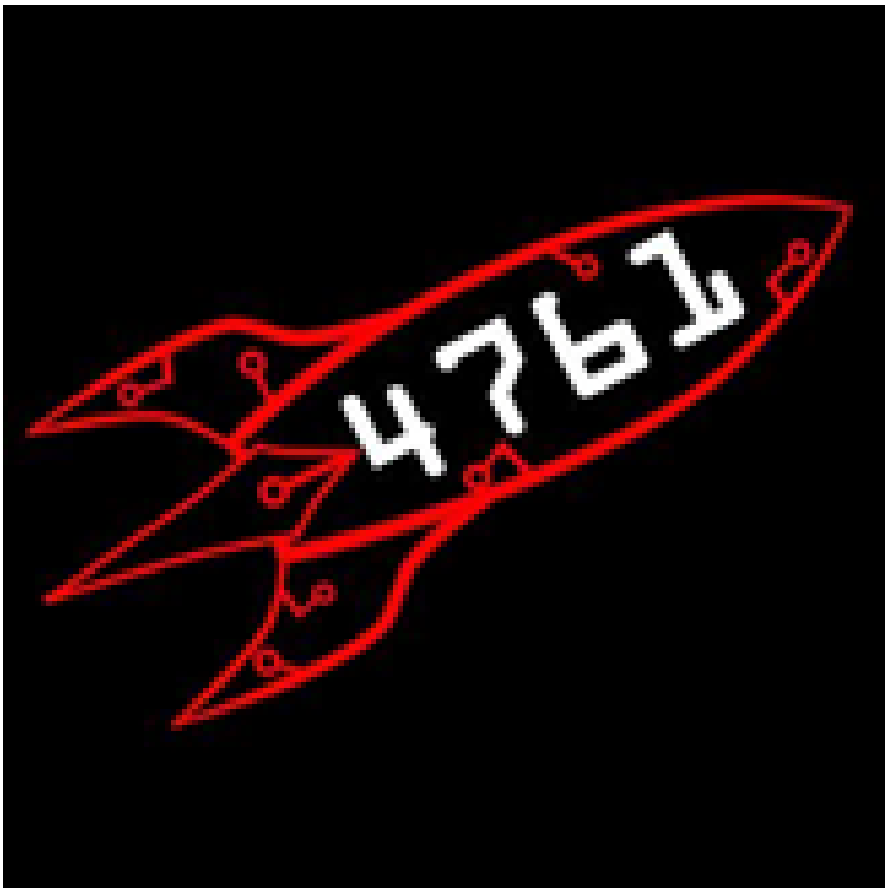
Team 4761
2022-23 Handbook



Reading Memorial High School
FRC Team 4761 “The Robockets”

FIRST Robotics Team 4761 Overview

The excitement of sport, the rigors of science. Under strict rules, limited resources, and the guidance of volunteer mentors including engineers, teachers, business professionals, parents, alumni and more, teams of 25+ students have just six weeks to build and program robots to perform challenging tasks against a field of competitors. They must also raise funds, design a team "brand," hone teamwork skills, and perform community outreach. In addition to learning valuable STEM and life skills, participants are eligible to apply for $25+ million in college scholarships.

What does this mean? Not only does Team 4761 build and compete with robots of our own design, but we run it like a high-tech startup. In order to have a successful season, we must promote and fundraise constantly. Professionals mentor the Robockets, so we learn the best techniques of the business. We are therefore able to work with sophisticated hardware, software, business tools and processes.

Why do we do this? We learn, while having fun. It inspires us to pursue STEM throughout the rest of our lives, and teaches us how to work well in a team. FIRST offers students a hands-on way of learning not offered in the typical academic classroom. The team is about more than just building a robot: writing, business, creativity, and social skills are also learned through this activity. In the end, the robot is the material embodiment of our hard work. It is exciting to see our efforts physically represented.

What are the basics about our team? Team 4761 consists of 2 co-presidents, 9 team leads, regular team members, and mentors. This year, we have about 12 mentors.

What do team members do? Everything! Team members are the core of Team 4761. Members learn from each other as well as the team's mentors. Team members can work with the technical and/or business workstream teams. Technical team members can learn to design in CAD, program a robot, build with pneumatics, use engaging tools, and build a robot. Business team members learn the importance of outreach and communication and collaboration. All team members work to run the team startup.

What do mentors do? Mentors guide students to reach their full potential. They work with the students and bring their different experiences to the table. Mentors help students understand certain aspects of the engineering design process, while letting the students take charge of their own learning.

Who are our sponsors and how do we partner with them? We gain sponsors through student, mentor, and parent outreach. Through our sponsor presentations and demos, we give back to our sponsors.

How do we support our community? We promote STEM and FIRST Robotics throughout RMHS and the Reading community through demoing our robot at street fairs, friends and family days, workshops, meetings and communication/work with other teams, robot day, some students volunteer with younger FLL programs, and by hosting a competition at RMHS.

What's in it for you? Through FIRST Robotics, you gain life experience similar to a high tech startup. You gain connections with professional mentors and sponsors, which could line you up with recommendations, internships, and possibly jobs. Also, FIRST gives $50 million in scholarships; scholarships you qualify for. FIRST is a life experience, it's opportunity, and it's community.

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1.0 Mission Statement

FRC Team 4761 “The Robockets” promotes a fun and interactive out of the classroom educational experience for Reading students that supports the STEM (Science, Technology, Engineering and Math) initiatives within the schools. We challenge students to collaborate as peers with adult mentors who are subject matter experts in the business and technical disciplines required to make a successful team/business. The Robockets students foster innovation to challenge themselves with hands-on learning to design, fund, market, and build a robot. The team relies on cooperation, compromise, sportsmanship, and strategy to overcome challenges. Through this, we take pride in our accomplishments and gain life skills. One of our greatest achievements is meeting new people and building relationships and alliances, thus creating an expansive community. This process enables students to contribute to the community and develop excitement for STEM careers.

2.0 Rules and Conduct

FIRST exemplifies many ideals that inspire young people to be science and technology leaders and that foster well-rounded life capabilities including self-confidence, communication, and leadership. Each team member is an extension of the team itself and are seen as team representatives in all that they do. Each team member is **expected to follow RMHS rules at all times**. **Each team member is ultimately responsible for his/her own behavior**. If students are disruptive or are not participating in the team-assigned activity, he/she will be sent home. We like to have fun, but we also need to be cooperative and productive. The Robockets’ expectations of good behavior of all team members is modeled off of the FIRST ideals, as described below.

NOTE: Should the team need to travel for an overnight event additional expectations will be discussed with the students prior to the trip.

2.1 Gracious Professionalism

The FIRST ideal of gracious professionalism is a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community. With Gracious professionalism, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process. The Robockets team member expectations related to this ideal include:

Students will display “Gracious Professionalism” towards each other, other team members, mentors, other teams, judges, and volunteers at all times and promote the ideals of FIRST:

- Students are expected to behave in a courteous and cooperative manner.
- Students are expected to be respectful of others and the space and behave in a way that protects the health and safety of themselves and others.
- Students shall not use profane, obscene or vulgar language in written, gestured, or verbal form. Students' internet/social media/online communications are team communications, and will be regarded as such.
- Students visiting or working at corporate or sponsor sites are guests of the corporation/sponsor and must be courteous and respectful. While off-site, students are expected to follow the general rules and safety rules posted at the site.
- Students participating in off-site events will be respectful of everyone else. This means each student will arrive at the designated meet-up spot on time or will contact a workstream lead about any delays. Additionally any cancellations will be communicated in a timely manner so mentors and parent volunteers are not looking for you.

2.2 Cooperation, Respect and Responsibility

FIRST describes the combination of cooperation, respect and responsibility as Coopertition®. At FIRST, Coopertition is displaying unqualified kindness and respect in the face of fierce competition. Coopertition is founded on the concept and a philosophy that teams can and should help and cooperate with each other even as they compete. Coopertition involves learning from teammates. It is teaching teammates. It is learning from Mentors. And it is managing and being managed. Coopertition means competing always, but assisting and enabling others when you can.

- If you make a commitment to complete a task for the team, you will be held accountable for its completion.
- Students are expected to keep current with team activities and requirements by checking in with workstream leads, Slack, and their email frequently.
- **Students are expected to be reliable, on time and present when they have committed to being at meetings and events. In the event of absence or tardiness, students are expected to communicate absence or lateness at #late-slips using Slack.**
- Students are expected to be prepared to work, clean up, have a positive attitude, assist newer members, be responsive to team leads, mentors and other adult volunteers.
- All students are expected to participate in business tasks such as outreach events, grant writing, and awards.

- Team members shall be respectful of the facilities, tools, equipment and all things being used by the team. For example, waste of materials and misuse of tools will not be tolerated.
- All team members shall participate in keeping the work areas clean and organized as they work, and in particular, at the close of each working session.
- At events and in the team meetings, members should avoid any distractions (e.g. playing games on their phones/portable gaming units) that can compromise both team goals and opportunities for personal growth in the field of technology.

2.3 Safety

Students must take every safety precaution possible with whatever they are doing.

- Appropriate Focus: As membership on a robotics team involves a great investment of energy, skill, money, thought, cooperation, and time from people at so many levels, team members should participate with good focus. Attention to the task at hand is essential for safety and success in our goals.
- Appropriate Attire: Proper clothing should be worn for safety purposes and out of respect for team participation**.** This includes appropriate use of safety glasses and any other safety equipment when working on the robot. Additionally all students should tie back loose hair and clothing, and wear closed-toed shoes when working on the robot or going into the pit area.
- Power Tools: All drilling and cutting power tools may only be used while a mentor is present.
- Permission Slips: Students must sign up and submit a permission slip to participate in a robotics team sponsored event. For example, if the robotics team sponsored event is an off site visit to a sponsor site, or an off site tournament, students must sign up ahead of time to participate and submit a permission slip before the deadline. Students cannot just show up at the sponsor or tournament site during the event unannounced.
- Student Drivers: Students are NOT allowed to drive themselves or other students to any robotics team sponsored event as this is both a school and team liability. A “robotics team sponsored event” means any event which requires a permission slip to attend.
- Students must stay with mentors or parent chaperones during any robotics team sponsored event (field trips/competition events).
- Students cannot leave a robotics team sponsored event without making a team lead aware first.
- At RMHS and any off-site events, students should maintain good behavior and conduct.

NOTE: Please read and sign the attached Safety Contract.

2.4 Team Spirit

Team spirit is another important element of FIRST. The Robockets team members are encouraged to demonstrate team spirit in the following ways:

- Wearing our team shirts during the competitions
- Wearing our team shirt or Reading school attire during fundraising and community events
- Wearing our team shirts during sponsor presentations and demos
- Showing support for other teams, as well as our own at FRC competitions
- Demonstrating an enthusiastic attitude towards all team activities both during and outside of practice

2.5 Academic Eligibility

Success both in the classroom and in robotics is important to Team 4761. All students must succeed not only on the team, but also in regular academic classes. Students must maintain a reasonable GPA (~2.5) throughout the season, similar to the GPA requirement for sports. School work and student academic performance take priority over team and robot events and activities. Every student must **maintain academic eligibility per RMHS policy**.

Ineligibility: If a student fails to maintain the standard school GPA requirement, the student must take the graded quarter off the team. The student may not participate in build season or attend team events. The student's main focus must be school work and improving their academic performance.

Help Available: Team 4761 will help any students in need of academic assistance. Team 4761 wants the team to succeed both with robotics and academically.

2.6 Disciplinary Action

If a student does not follow team expectations, the student will be disciplined accordingly. Discipline examples may include:

- Talking with team lead/mentor
- Email to or discussion with parents
- Suspension from team (may include removal from team events)
- Removal from the team
- RMHS administrative action

3.0 Team Structure

FRC Team 4761 “The Robockets” team consists of:

- 2 Co-presidents
- 7 Team Leads
- General Team Members
- Junior Members
- Mentors
- Parent Volunteers

3.1 Team Leads

The Robockets has many leadership opportunities for dedicated team members after participating in the team for one year. The team leads are chosen through an election process and consist of students who have demonstrated exemplary commitment and leadership to the team across both the business and technical sides. To qualify for a president or workstream lead role team members must fulfill the requirements outlined in the above sections including being an active team member for at least 1 year and demonstrating active support of the business side of the team.

The team is divided into a technical team and a business team (with some overlaps). Team presidents will be expected to hold a high level of responsibility as they organize workstream leads and manage other team members.

Co-Presidents:

- Work together to form a cohesive and balanced team.
- Run team meetings and designate projects.
- Take responsibility for their designated team (Technical team or Business team).
- Plan the daily agendas and goals of team meetings.
- Fiscal responsibility.
- Lead by example and encourage active participation of all in business led activities and events

Team Leads:

- Represent, train, and encourage their workstream.
- Plan their workstream’s daily agenda and goals.
- Take responsibility for their designated workstream tasks.
- Educate new team members and exemplify proper behavior and safety.
- Lead by example and encourage active participation of their team in business led activities and events

<u>Our team student leads include two subteams:</u>

Technical Team

- Technical Co-President (Sachin Patel)
- Mechanical Lead (Brendan Manning)
- Project Manager (Maureen Manning)
- Programming Lead (Cory Wright)
- Electrical Lead (Josh Boran)
- Design Lead (Karissa Chan)
- Strategy Lead (Miles Lynch)
- Shop Lead (Gianna Gagliardi)

Business Team

- Business Co-President (Abdullah Mughal)
- Media Lead

3.2 Workstreams

Team members participate in one or more of the workstreams listed below

Workstream	Responsibility
Design Team	Designs the structure of the robot
Mechanical Team	Prototypes and builds the structure of the robot
Strategy Team	Gathers information on other teams' robots and determines how to best play the game and design the robot with teammates
Electrical Team	Powers the robot and makes the robot talk with the programming code and sensors
Programming Team	Programs the robot to be controlled by humans or through automation and sensors
Awards Team	Applying for Chairman's Award and other FIRST Awards (Entrepreneurship, team spirit, design, ingenuity)
Media Team	Documents team activities through pictures and video (website, social media, and team records)

3.3 Team Membership

Unlike most varsity team activities at Reading High School, FRC Team 4761 "The Robockets" does not have any try-outs or other entrance requirements. The Robockets is an open team, welcoming all who wish to participate. The wide variety of business and technical opportunities on the team offers each student the chance to discover his/her role. Your level of participation determines many things about your membership, including championship travel and future leadership roles.

Team 4761 is open to any academically eligible RMHS student and a select number of junior members (8th graders).

General Team Members

The Robockets team is open to any student who wishes to participate. We welcome team members who are actively involved with other teams/sports and may not have extensive time to commit to the team. It is important to communicate availability and to commit to an attendance schedule so that the team can count on each other. Priority consideration will be given to students who demonstrate significant commitment in the case of limited participation events (such as limited carpools, business presentations, tournament travel) and more hands-on robot time during build season.

Junior Members

Junior members will be allowed to participate each year as determined by the team leads. Junior members must have a serious work ethic, a desire to experience aspects of engineering, intentions to participate on the Robockets in high school, and the maturity to work independently. As the demands and responsibilities of FIRST challenges are extensive, some limitations may apply to this junior membership.

Team Commitment

Commitment to each other is the key to a successful team. When we can count on each other to do what we say we will do, when we say we will do it, our team is the most successful. The more time you commit to the team, the more responsibilities you will have, and the more cool stuff you will be a part of. If you only have two hours per week to commit and you consistently come when you say you will, your team lead will be able to count on you and assign you meaningful responsibilities, knowing that you will accomplish them. If you show up now and then when you can it will be more difficult for you to be involved in the cool stuff, but there are always things to do to help the team.

To demonstrate team commitment, team members are asked to:

- Attend meetings during non-build season whenever possible, a majority of the build sessions during build season, and team events as necessary.

- Students are expected to make a significant time commitment to the team, actively participating in meetings, workshops, and events. **Commitment to the team increases significantly during the months of January – April.**

- **Participate in grant writing, fundraising, and local and corporate sponsor "asks" and community outreach events.** Being an FRC Team is more than just a group of students and mentors building a robot. To be a successful team FIRST/FRC limits resources and time to challenge teams to raise funds, hone teamwork skills, and build robots to perform prescribed tasks against a field of competitors. It mimics "real-world engineering" projects including raising the funds, managing a budget and marketing our product - the team itself along with our robot. Essentially being on an FRC team is like being a key player in a high-tech startup. As in all high-tech startups, every member is required to play a role in raising capital and sustaining the business.

3.4 Mentor Roles and Responsibilities

The main responsibility of all mentors is to **aid students in reaching their full potential**. All mentors must be a positive influence on all students.

Mentor Commitment

All aspects of mentoring are welcome, whether it be technical or business oriented, as long as they bring dedication to the team.

When committing to Team 4761, all mentors must recognize the time commitment of mentoring a FIRST Robotics team. All mentors should understand what time they can commit to the team and make their availability clear before joining the team.

FIRST has also published a Mentoring Guide that is a good introduction and discussion of the fundamentals of mentoring. Refer to this Mentoring Guide for additional information.

3.5 Parent Participation

The support, encouragement, and participation of team parents and families are **key to Team 4761's success**. The robotics team becomes a family throughout the year as we spend a lot of time together. The students learn about hard work, perseverance, commitment, patience, joy, defeat, respect, engineering, writing, interviewing, business skills, money management, marketing, production, computer skills, publishing, kindness, time management, and most importantly, gracious professionalism.

The Robockets hosted the North Shore District event in March. This is an amazing event which is so much fun and also requires a great deal of parent support to run smoothly. During the tournament weekend, which runs Friday evening through Sunday evening, we will ask each family to volunteer for (4) 2-hour shifts - many hands make light work! In addition to these volunteer hours, the team needs other types of support throughout the year, for instance:

- Participating in team events like the Reading Street Faire, Science Expo, Festival of Trees alongside the students - these events are a lot of fun (and, frankly, the students do most of the work) but usually require transporting a robot and some marketing displays, and some light supervision.

- Providing water/soda/snacks during build and competition season (teenagers are always hungry!)

- Transporting a presentation team and robot to a company for a sponsor presentation after school (usually takes a team of two parents with two vehicles)

- Carpooling to and from tournaments (requires CORI and SAFIS fingerprinting)

- Chaperoning an overnight tournament - this does not happen every year (also requires CORI and SAFIS fingerprinting)

- Mentoring (again, requires CORI and SAFIS fingerprinting)

3.6 CORI & SAFIS Background Checks

Any adult mentor or parent volunteer on the team must complete both a CORI and SAFIS certification per the State of MA. Information on both of these are available from RMHS administration.

4.0 Other Important Information

4.1 Sponsorships

Sponsors are a major source of funding for the team. From them, we receive donations and grants that allow the team to operate. This funding can be provided by local companies or major corporations. Funding can be obtained by reaching out to these benefactors through presentations, letters, and grant requests.

Sponsors are categorized based on donation amount or value as follows:

Sponsorship Level	**Donation**	**Benefits**
Bronze	$500 +	• Name/Logo on Website
Silver	$1000 +	• Name/Logo on Robot and Website
Gold	$2500 +	• Name and Logo in Team Videos • Recognized by FIRST as Official Team Sponsor • Prominent Name/Logo on T-shirt, Robot, Website, and Social Media
Platinum	$5000+	• Recognized by FIRST as Official Team Sponsor • Robot Demonstration • Prominent Name/Logo on T-shirt, Robot, Website, and Social Media • Name and Logo in Team Videos .

Each year, groups of students and team leads will participate in formal presentations to sponsors and supporters of the team. Sponsor presentations and robot demonstrations will not be held during school hours.

We welcome any connections you may have with tech and/or local companies who might be interested in sponsoring our team!

4.2 Scholarships

One of our goals each year is to award scholarships to Robockets seniors who have made a big impact on the team. The dollar amount of the scholarships will be determined based on the funds raised by the team and/or Reading Engineering Team board as well as the team's projected expenses for that year, and so will vary from year to year. Scholarship recipients will be chosen based on factors such as length of time on the team, roles played on the team, and commitment level. Recipients must have shown many examples of the FIRST values. These values are:

- Gracious Professionalism: encouraging high-quality work, emphasizing the value of others, and respecting individuals and the community.

- Coopertition: displaying unqualified kindness and respect in the face of fierce competition; learning from teammates and teaching teammates; learning from Mentors. And it is managing and being managed. Coopertition means competing always, but assisting and enabling others when you can.

Mentors will discuss and nominate scholarship recipients; mentors who are also parents of seniors on the team will not participate in the nomination discussion and process for that year. The Reading Engineering Team board of directors will have final approval for all scholarship recipients.

4.3 Important Contacts

To keep up to date with the team's activities, all team members are encouraged to follow the team on social media.

1. Website: www.robockets.weeby.com
2. Twitter: @FRC4761
3. Instagram: @robockets.4761
4. Facebook Page: FRC Team 4761 'The Robockets'
5. Email : robockes.4761@gmail.com

To reach Chuck Strout, RMHS Lead Mentor, email charles.strout@reading.k12.ma.us or call 781-944-8200 x313.

4.4 Required Tasks Checklist

- Submit a check for team dues in the amount of $100 (per child) payable to:
  Reading Engineering Teams, Inc.
  PO Box 81
  Reading, MA 01867

  Tax ID: 46-5231808
  Families for whom fees represent a hardship may contact the Team Lead Mentor(Chuck Strout).

- Register/update your child's registration(free) on FIRST website at: https://www.firstinspires.org/ (click on either "sign up" or "login" at the top right of the page)
- Sign and return 2019-20 Robockets Team Student & Parent Contract
- Sign and return Safety Contract
- Sign and return the New England FIRST Consent and Release Form

For mentors and parent volunteers, also:

- Complete or renew CORI form at RMHS main office (bring your photo ID)
  - https://www.reading.k12.ma.us/files/9714/7447/8339/CORI_FORM.pdf
- Go to www.firstinpsires.org and sign up/login to complete Youth Protection Clearance and click on Consent and Release forms
- Submit fingerprints to SAFIS -- SAFIS required for all mentors as well as all parent volunteers who may carpool or chaperone an event
  - https://www.reading.k12.ma.us/files/8214/7448/0989/Fingerprinting_Sign-off.pdf
  - https://www.reading.k12.ma.us/files/2714/7810/7335/7_Fingerprinting_Letter.pdf

ATTACHMENT 1

2022-23 Robockets Team Student & Parent Contract

By signing below, I acknowledge and understand these points and agree to all of the following rules and conditions:

1. I have read the 2022-23 Team 4761 Handbook and understand participation and behavioral expectations of the team.
2. I understand that being part of the Robockets is a time commitment. If I choose to attend certain team events, I may potentially miss school or school work. I understand this and acknowledge that it is my responsibility to inform teachers of absences and make up for all missed work.
3. I will make every effort to attend team meetings and team events.
4. I agree to meet all the team requirements for the level of participation I would like to engage in.
5. I understand that my actions reflect on the Robockets team, and I will comport myself with Gracious Professionalism, cooperation, respect, and responsibility at all times.
6. I understand the importance of safety and have signed the attached Safety Contract.
7. I will maintain a positive and supportive attitude at all team meetings and team sponsored events that I attend.
8. I will be respectful of others in my behavior at all times. This includes (but is not limited to) my team members, other teams, mentors, parents, judges, sponsors and with anyone else that our team interacts with.
9. I will have fun, while following the handbook rules.
10. I understand that this handbook may change from time to time. I understand this handbook is a guide and does not cover all situations. I will use my best judgment when reacting to different situations.

Printed Student's Name: _____ Grade: _____

Student's Email: _____ Student Mobile: _____

Printed Parent's Name: _____

Parent's Email: _____ Parent Mobile: _____

I agree to the above terms and conditions:

_____ _____
(Student Signature) (date)

_____ _____
(Parent Signature) (date)

ATTACHMENT 2

Safety Contract

By signing below, I acknowledge, understand, and agree to all of the following safety rules:

1. I will ALWAYS wear SAFETY GLASSES when in the shop, in all work areas, and while working on or near the robot.
2. I will be very careful to NOT RUB MY EYES or touch my face unless I have washed my hands first. I understand there are tiny metal and plastic filings created when working in the shop that could irritate or injure my eyes.
3. I will wear CLOSED TOED SHOES and KEEP LONG HEAR BACK in the shop or while working on the robot.
4. I will NOT wear JEWELRY, rings, watches, hoodies with STRINGS, lanyards, long necklaces, scarves, or any LOOSE ITEMS that could become entangled while operating machinery or near the robot. All of these things could get caught in a machine and lead to injury. (Strings and necklaces may be tucked into your shirt.)
5. I will practice HAZARD COMMUNICATION. I will not walk away from a hot soldering iron or other possible hazard without announcing the potential hazard.
6. I will PICK UP loose parts I see on the floor to prevent slips and falls. It doesn't matter if I dropped it or not - if I see it, I will pick it up.
7. I will DE-ENERGIZE the machine/robot before adjusting or servicing it.
8. I will always RESPECT the machines. I won't get too comfortable and will always use care when using or near machinery.
9. I will only use power tools after being TRAINED and while being SUPERVISED by a mentor.
10. I am NOT ALLOWED to operate the table saw, circular saw or chop saw, or any piece of equipment labeled "for mentor use only" ever.
11. I will not drive myself or anyone else to an off site tournament or robotics sponsored team event requiring permission slips.
12. I will point out safety violations to students and mentors when I see them as well as reporting any injury (big or small) to a mentor immediately.

I have read and understand the Safety Contract:

Printed Student's Name: _____

_____ _____

(Student Signature) (date)

I have read and understand the Safety Contract:

Printed Parent's Name: _____

_____ _____

(Parent Signature) (date)