

The PowerKnights

Manchester, NH



Robotics Team 501 Handbook



Issued December 2012

Mailing Address:

FIRST Robotics Team 501
The PowerKnights
9 Notre Dame Ave
Manchester, NH 03102

Team Website:

www.PowerKnights.com

Team Handbook Acceptance

This handbook was reviewed and accepted by:

Isaac Onigman, Team 501 School Advisor
Manchester High School West

Date

Keith Puglisi, Acting Principal
Manchester High School West

Date

Kevin Farley, Team 501 School Advisor
Goffstown High School

Date

Frank McBride, Principal
Goffstown High School

Date

????, ????
4-H ????

Date

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Team Mail Address for Correspondence

The following address has been established for the team. Please use it to send in required team and travel forms, payments for travel, and donations from sponsors:

FIRST Robotics Team 501
The PowerKnights
9 Notre Dame Avenue
Manchester, NH 03101

Team Website and Email Addresses

<http://www.PowerKnights.com>

IONigman@gmail.com

Isaac Onigman, Team 501 School Advisor
Manchester High School West

KFarley@goffstown.k12.nh.us

Kevin Farley, Team 501 School Advisor
Goffstown High School

Payments to the Team

Please make all checks out to “WHS – FIRST Robotics Team”. Also, please put the student’s name and school name in the memo line of the check.

Required Forms

A copy of all required team forms can be found on the team’s website. Links will also be provided to other sites (i.e., the associated schools and the 4-H) for access to their forms.

Governing Documents

The PowerKnights FIRST Robotics Team 4-H Club is an unincorporated association affiliated with the New Hampshire 4-H Association, Inc., a New Hampshire voluntary corporation and recognized Section 501(c)(3) tax exempt organization. The governing document for all rules, policies and procedures to be followed is the Cooperative Extension 4-H Policy Manual, which may be obtained on-line at <http://extension.unh.edu/resources>. The team is also affiliated with Manchester High School West and Goffstown High School, and Student Handbooks for the appropriate school district may be obtained through the School Advisor or by contacting the school directly. This PowerKnights FIRST Robotics Handbook supplements these documents and provides information pertaining specifically to Team 501.

The Steering Committee reserves the right to amend the PowerKnights FIRST Robotics Handbook as necessary throughout the team year. Such amendments will be approved by majority vote of the Steering Committee and accepted by the Cooperative Extension County Office. Any recommended amendments will then be posted to the team website and all team members are responsible for becoming familiar with its contents and requirements.

Mission Statement

Team 501, The PowerKnight's mission is to affect the culture of education utilizing the FIRST program. We will enhance the learning of science and engineering, respect the values of various families, inspire innovation, mentor responsibility, promote teamwork and create partnerships, while continuing to be characterized as a FIRST team to emulate.

Key Strategies of focus include:

- Fostering innovation in the creative process, utilizing strategies needed to maintain a highly effective team during the engineering process used to design/build the robot.
- Creating a family respectful of the team, school, local, FIRST, and 4-H communities.
- Delegating responsibility and authority to teammates, thus teaching accountability for their commitments.
- Demonstrating the application of mathematics, physics and science used in solving practical problems through mentoring.
- Developing teamwork skills through brainstorming activities, assigning tasks (business and technical) to involve all aspects necessary to have an effective and professional team.
- Providing an atmosphere with freedom to accept challenges enabling self-discovery, direction and confidence, instilling pride in project completion.
- Teaching gracious professionalism by offering all involved the growth to gain from both positive and negative experiences, allowing for success in present and future endeavors.
- Providing exciting and interesting opportunities for all team members while having fun!

Team 501's Mission Statement reflects the Mission Statement of both FIRST and the New Hampshire 4-H Youth Development Program.

4-H Club Operations

The Club meets in Hillsborough County, and reports to and is assisted by 4-H Youth Development staff of the County Cooperative Extension office of the University of New Hampshire. The Club shall be supported by a minimum of one (1) adult volunteer who has been screened and pre-approved by the County Extension Office staff; although a goal will be to have all adult mentors comply with these requirements.

Pledge:

The Club pledge shall be:

I pledge ...
My Head to clearer thinking,
My Heart to greater loyalty,
My Hands to larger service, and
My Health to better living, for
My club, my community, my country, and my world.

Affiliation with the State Association and Use of the 4-H Name and Emblem:

The Section 501(c)(3) tax-exempt status of the Club is derived from the State Association by means of its inclusion in the Internal Revenue Service (IRS) Group Exemption Number ("GEN") assigned to the State Association.

The Club is operated in accordance with the policies and procedures of the State Association, the University of New Hampshire and the Cooperative Extension, and shall remain under the control and supervision of the Board of Directors of the State Association through the County Extension staff. The Club shall comply with all applicable federal, State and local laws, and conform to all policies and best practices of the Cooperative Extension and its 4-H Youth Development Program.

All uses of the 4-H Name and Emblem (a green four-leaf clover bearing a white "H" on each leaflet) shall be subject to the terms and conditions set forth in the NH 4-H Policy Manual.

Fiscal Year and Finances:

The Club will manage its finances in accordance with the NH 4-H Policy Manual and under the direction and supervision of the State Association through the County Extension Office Staff.

Fundraising efforts using the 4-H Name and Emblem shall be conducted in accordance with the terms and conditions of the NH 4-H Policy Manual and shall be subject to the prior approval of the State Association through the County Extension Office staff.

The Club may receive tax-deductible contributions in accordance with the appropriate sections of the current Internal Revenue Code of 1986, as amended and any future tax code.

The Fiscal Year of the Club shall be January 1 to December 31.

Dissolution:

In the event of the dissolution of the Club, in any manner or for any reason whatsoever, its remaining assets after payment of all debts and obligations of the Club, if any, shall be distributed for one (1) or more exempt purposes within the meaning of Section 501(c)(3) of the Code, or the corresponding section of any future federal tax code, to any other 4-H organization affiliated with the State Association or the 4-H Foundation of New Hampshire.

History

FIRST - For Inspiration and Recognition of Science and Technology is the brainchild of Dean Kamen of Bedford, NH; an engineer, inventor and entrepreneur. Mr. Kamen was concerned with the decreasing number of students graduating from United States high schools who went on to study in the areas of science, engineering and technology. The attitude and culture of education in the United States was heading in a direction that would jeopardize the future of the technical workforce of our country. Deciding to address this issue, he created U.S. FIRST. FIRST was designed to inspire high school students to become involved in science and engineering, through adult mentoring, to design and build a robot to play a "task oriented" game. The program grew from 28 teams in 1992 to over 1,000 national and international teams in 2005. Through its international expansion, U.S. FIRST became simply FIRST. As the program expanded, through its Lego League and the VEX robot programs, FIRST became FIRST Robotics Competition, or FRC.

Betty Roy, a math teacher, organized the original Manchester High School West team, "The PowerKnights," for the 1993 competition. In 1994, Public Service Company of New Hampshire (PSNH) became West's corporate sponsor until 2000. During that time, the team's name changed to "Blue Lightning." As Team 146, "Blue Lightning," we earned a reputation as a solid team, winning Good Sportsmanship and other awards at both the regional and national levels. In 1995, Terry Villemure, Jim Pingree and Ed Forcier joined the team as advisors. As the business climate changed in the late '90s, PSNH was no longer able to partner with West High. Betty Roy, Mrs. Villemure and Mr. Pingree retired as advisors.

In 2001, FCI BURNDY, now BURNDY, headquartered in Manchester, was looking for a team to sponsor and partnered with Manchester High School West. The team retook the name "PowerKnights" and became Team 501. With Ed Forcier as advisor and Jefferson Hall as FCI's engineer, the team prospered. The team developed a new focus of hands-on participation with an entrepreneurial approach and fostered the philosophy of "gracious professionalism." During this relationship, Team 501 has won three regional competitions and one finalist title at a regional competition. Team 501 has worked hard to embrace and implement the values and philosophy of FIRST. In 2005, Team 501 was awarded the Chairman's Award at the BAE Regional in Manchester, NH and the Kleiner, Perkins, Caufield and Byers Entrepreneurial Award at the Chesapeake Regional in Annapolis, MD. In 2006, the team was awarded the Entrepreneurial Award at the BAE Regional in Manchester, NH along with the Daimler Chrysler Team Spirit Award at the Southern California Regional in Los Angeles, CA. FCI was awarded the Greater Manchester Chamber of Commerce Education Excellence Award for 2007. After being nominated by Team 501, Jefferson Hall was awarded the UNH Young Alumnus/Alumna Achievement Award of 2008.

In 2005, the PowerKnights acquired HomeSeer Technologies as an additional partner. Their software programming strength was a great benefit to our team, in addition to countless other contributions to the team. The president of the company, Richard Helmke, has taught a C-Programming course to the students of the team during the summer for the past few years. He was also the head mentor for the controls committee during the build season, which is responsible for programming software for the robot and creating the controls system. Karen Franz was one of the team's travel coordinators, and also helped to better document the team's finances. In addition, HomeSeer Technologies provided internships to several of the students on the team, particularly those interested in computer science and engineering.

Dynamic Network Services, Inc. now Dyn, came on board as another major team sponsor in 2007 after having previously donated to the team in 2005. Owners Jeremy Hitchcock and Tom Daly have provided the team with valuable assistance in programming and networking skills. Mentor Alan Ellis began working with West High

students using VEX kits and mentor Charles Phillips started working with the VEX kits at Goffstown High. Alan also took on the huge task of upgrading the team website. After working hard to improve the website for several years, Team 501 was thrilled to win the 2010 Website Excellence Award at both the BAE and St. Louis Regionals.

After several years of having only one Goffstown High School student as a team member, more students from GHS in Goffstown, NH joined in 2008, and have added tremendously to the dynamic of Team 501. In 2012, Kevin Farley joined the team as School Advisor for GHS.

Over the years, Team 501 has worked diligently to become a FIRST team for other teams to emulate. The recognition given to the team by its peers in 2005, exemplifies the team's mission of meeting students' needs and teaching values and methods that will serve students long after they graduate from Manchester High School West.

Team 501, The PowerKnights, is proud to be one of the three public school teams located in Manchester, NH, the Home of FIRST.

Team Member Qualifications

Qualifications to be a team member are important to ensure the goals and objectives of the team are accomplished with quality and efficiency. There are minimum qualifications to be eligible for the team. Like any small technology company, team members need to have a genuine interest (but not necessarily experience) in at least one of the following areas to be effective participants:

Technical / Science Related:

Science
Engineering
Robotics
Programming
Mechanics / Fabrication

Non-Technical Related:

Publicity / Public Relations
Fundraising
Spirit
Website
Videography / Animation

When a student joins the team each fall, he or she will complete and return the following forms by the date specified in order to continue participation:

- 4-H Member Enrollment Form
- Team Membership Information
- Student Health Information
- Student Responsibility Contract
- Parent Responsibility Contract
- Order Sheet for Team 501 Shirt

What makes a good team member?

Grades:

Schoolwork comes first; FIRST comes second. Study skills, classroom assignments, grades, and classroom/school involvement are positive learning habits that are necessary both for school and for technology-related activities. Students are required to be in good academic standing and comply with all behavior standards as defined by their school's Student/Parent Handbook and academic standards held by all varsity team sport members.

Ability to Work Both Independently and as a Team Member:

The ability to work effectively, smoothly and respectfully as part of the team is an asset both for individual members and for the team. However, learning to work independently with little or no direction is also an important attribute.

Ability to Commit to a Project:

Starting a project and following it through to the end is critical to team performance. Team members need to dedicate themselves, because effective team membership requires many hours of a student's free time. Careful planning and scheduling are necessary to stay actively involved and to balance team involvement with schoolwork and other activities.

Good Attendance, Punctuality and Dependability:

These traits are indicators of a student's commitment to their education and future. A team member needs to be available and ready to participate as much as possible. When asked to participate, responding, dependability, and punctuality are essential to team organization and efficiency.

Good Judgment, Honesty, Integrity and Positive Behavior:

Each team member is an ambassador of our team. Team members need to be role models for other students to emulate and respect. Solid behavior choices should be demonstrated at all times, in and out of school activities. All team members must behave kindly towards all other members on the team and toward the public at large. Other teams are to be treated with respect and gracious professionalism. Proper language and actions will be used at all times.

Community Involvement and Service:

Team members are required to perform community service. The FIRST mission is to change the way America's young people regard science and technology and to inspire an appreciation for the real-life rewards and career opportunities in these fields. Team members maintain a year-round partnership with the community, school, sponsors, and other organizations by volunteering to support the spirit of FIRST.

When Team Membership is Determined

If a student is enrolled at one of the PowerKnights' affiliated High Schools on the first day of the school year, the PowerKnights team membership will begin on the date all required documents are complete, prior to or on the due date of the forms as determined by the Steering Committee (usually October 1). The School Advisors can, in rare circumstances, make an exception.

Transfer students entering one of the PowerKnights' affiliated High Schools after the first day of the school year may apply for team membership within the first 30 days of attending. Membership will be at the discretion of the School Advisors and/or the Steering Committee.

Each year all returning team members are required to follow the qualification guidelines outlined in the team handbook - meaning they have to reapply. Placement on the team is not automatic because of experience.

Participation

The FIRST Team requires many hours beyond the normal school day. Team and subcommittee meetings, events, and activities will be scheduled regularly and as far in advance as possible. Scheduling is the responsibility of the School Advisor(s), the team captain(s), committee and subcommittee chairs. Meetings will be announced, via email and the team calendar, to the whole roster so that the entire team is kept current with activities, and so that students may sample new areas of interest.

There will also be occasions, especially during the robot build season, where small groups of students are asked to help out on short notice in ways appropriate to their skills, dedication, and indicated interests (e.g., publicity opportunity, special-skills build, repairs, or parts re-stocking).

Participation falls into two categories: **mandatory** and **voluntary**.

Mandatory activities are those activities where attendance is required. These include after-school meetings, all-team meetings, build season kick-off activities, and brainstorming sessions. *All-team meetings* are mid-week evening meetings held monthly to update and educate students, parents, mentors, and sponsors about the team's activities, and to coordinate future activities. Parents' participation in these meetings is valued and encouraged. *After-school meetings* are required meetings for students on a set day and scheduled to give time for students from all affiliated schools to attend. These meetings are used for business, team building, and other team functions.

Voluntary activities are those which many students (and parents) find rewarding. These include participation in Steering Committee meetings, fundraising, promotional activities, design and machining skills development, subcommittee activities, and opportunities to learn about technology careers, companies, and college programs.

Team 501 is independently funded. As the team does not have a dues structure, all team members are required to participate in team fundraising events, as agreed upon yearly by the Steering Committee. All of the monies collected from these events will be deposited into the General Fund.

Attendance is taken at all activities and hours recorded. It is the student's responsibility to sign in on the logbook with the Attendance Mentor. A student may only sign himself/herself in. The Attendance Mentor will forward all attendance sheets to the keeper of the logbook. All students are expected to be on time and stay the required amount of time. A student may be excused from a mandatory activity by contacting the team leadership in advance with an appropriate reason for your absence.

If attending a voluntary activity, the student will sign in and log attendance and time spent on the activity. Only those hours actually spent participating appropriately will be counted (i.e., working instead of standing around and chatting). Students should also log in hours spent on their own setting up events, designing and building necessary field, activity, or robot items. They should report these hours to the Attendance Mentor, who will log them in. Students are on the honor system in reporting these hours. If a dispute arises over hours, the adult volunteer overseeing the activity will be asked to mediate. Parent hours will not be counted toward student hours.

If it becomes apparent that the team is not one of a student's priorities, they will be invited to discuss continued participation with the team leadership. If participation is not improved, the student may be dropped from the team.

A student must have logged all mandatory activities and at least 30 hours of team activities in order to attend or participate in competitions as a team member. At least 10 of those 30 hours will be for participating in community service events, such as the Manchester Christmas Parade, and/or team fundraising-type activities, such as setup and teardown at River Rage. Those 10 hours must be completed before completion of build in February. If a team member does not receive the 10 hours prior to completion of build, they will not be able to participate in team travel or other activities. The School Advisors reserve the right to waive requirements, provided the student has a valid need. The Steering Committee may dismiss a student from the team if necessary.

School Work

All team members are expected to maintain all their grades and class work during the entire time he or she is on the team. As a PowerKnights FIRST Team member you are held to the same standards as held by all varsity sports team members. Refer to your school's Student Handbook for the academic policy.

Progress Reports/Report Cards:

The School Advisors will monitor your grades. If you are having difficulty with a particular class, it is important that this be brought to the attention of your School Advisor. Assistance is available from your counselor, the peer tutoring programs, and of course from the teacher of the class you are taking. All class work is your responsibility at all times.

Travel Assignments:

When we travel, you are required to get all class work, assignments and readings before we leave. Getting these assignments is your responsibility. Please allow teachers several days to get these assignments ready for you. Students should bring all required text and materials on the trip. Upon your return to school, all the assignments are due and must be turned in to your teachers.

Extended Learning Opportunities (ELO)

The State of New Hampshire requires a minimum number of credits for students to graduate. Two of those credits can be earned outside of school. If a student wishes to participate in this voluntary program, the requirements and forms to apply for the ELO are available from your school. It is the student's responsibility to complete the forms, document the hours involved and achievement of objectives with their mentor, and submit them for review. If you choose to work on the ELO, first obtain a mentor, and then fill out the forms for approval. Keep good records so the School Advisor and your Assistant Principal can review and award your credit.

Behavior

A team member's behavior is under scrutiny at all times. It is very important that you understand that you represent the affiliated High Schools, the corporate sponsors, and your team. You are expected to exhibit appropriate behavior at all times. This includes behavior within the classroom and school as well as at competitions, the corporate sponsor workplaces, team events, fundraisers, community service events, the website forums relating to FIRST, and online. Boyfriends/girlfriends will refrain from public displays of affection at all events. All policies established by the affiliated High Schools are followed and enforced by the team. Refer to your school's Student Handbook for the school policy. The School Advisors reserve the right to discipline a team member as necessary for the safety and the overall good of the team. The parents will be informed of any disciplinary actions as soon as possible.

The FIRST philosophy of "gracious professionalism" including courtesy, politeness and cooperation with fellow team members, parent volunteers, mentors, advisors and chaperones is expected. The behavior of all team members, to include both students and adults, is to be exemplary in all activities, including building, designing, events, both in school and at the corporate partner, and during travel. Discipline, including suspension, may be administered as outlined in the Student Handbook.

After School Activities

Many of our activities are after school. During the first semester, the activities are scheduled as needed and last about 1 to 1½ hours. During the competition season, second semester, we will work each day as required.

Students must provide their own transportation home. School policy prohibits students from driving with other students to school related activities. During the build season, the robot will be worked on at the following locations:

- Team 501 Build Space, 470 Commercial Street, Manchester, NH 03101
- Manchester High School West, 9 Notre Dame Avenue, Manchester, NH 03102
- Goffstown High School, 27 Wallace Road, Goffstown, NH 03045
- Dyn, 150 Dow Street, Tower 2, Manchester, NH 03101
- BURNDY LLC, 47 East Industrial Park Drive, Manchester, NH 03109.
- Intelitek, 444 East Industrial Park Drive, Manchester, NH 03109.

Procedure:

During these after school activities, students will work on many aspects of the competition. Meeting activities include discussing fundraising and spirit ideas, making team buttons, and planning future activities. This is also the time that the focus of your subgroup is developed. Strong pre-season preparation makes for less stress during the competition.

There are some specific tool skills that students will learn during the after school activities. Skill building activities that students need to learn or have in order to build the robot will also be taught.

Students will also learn about the components of the robot design process. When available, engineering mentors will present lessons on the usage of motors, the control system computer interface and the programming language. Presentations may also include the process of designing a robot for the FIRST competition that will occur second semester.

Students are encouraged to spend as much time as possible above the required activity days. This is very important to get the project completed. Attendance will be taken and recorded in the student logbook, recognizing time spent on projects.

At any event either sponsored by or participated in by Team 501, there will be no one-on-one contact between students and adult mentors (with the exception of children and parents). This means that a single adult must always have at least two students present, and a single student must always have at least two adults present.

Other Responsibilities:

It is understood that our students are very busy in many other school activities. These activities are encouraged and supported by our team. It is the responsibility of the student to manage and balance all their activities.

Academics, sports, school clubs, family commitments, and student's employment provide different challenges and different stress upon your time. It is important to communicate with your School Advisor to work out the timing of your activities. Often these activities can be accommodated to the satisfaction of both.

There are some instances, however, where the timing cannot be resolved. In this case you may have to choose which activity you will be putting your time and effort into. Please discuss this problem with your School Advisor before you make a final decision.

Health

Each team member (students and mentors) needs to have a complete medical form on record. This form must contain accurate information and be updated as the need arises. There will be two copies of this form, stored in separate sealed envelopes, and only available to the School Advisors or one of the 4-H Adult Volunteers for opening in an emergency. The first will be stored in a secure container located at the Team Build Space, and the second will be available for the responsible School Advisor or Adult Volunteer to take to any off-site activities. During competitions, each School Advisors will have one of the two sets of copies.

Students taking any medications while we are traveling need to have a list of these medications on file with the School Advisors. Parents should inform the School Advisors of special needs. All medical information is kept confidential by the School Advisors.

Team Attire/Costumes

Currently we have a Team 501 shirt. It is an important part of our image and thus must be maintained with dignity and care. Each team member will be given one shirt. Additional shirts may be available for purchase by students and parents as stock allows. The care and cleaning of the uniform is the student's responsibility.

Shirts will be worn on designated days and events. It is important not to cover or alter the shirt in any way.

The team also has PowerKnights costumes that students wear at competitions. These costumes should also be treated with care, not altered, then washed and returned to the School Advisors after an event.

Any items not returned to the team will be billed to the student who signed it out.

Please remember that all student attire must adhere to their affiliated High School's policy.

Email

Although there are morning announcements and other forms of communication at the affiliated High Schools, the website and email are used as the **primary** mode of dispensing information to both team members and their parents during the year. It is the fastest and most efficient way to communicate team meeting schedules, fundraising events, work sessions, etc. to a large group of members, therefore, team members should check their email frequently. If you have a question about an event, please check the website.

At the beginning of the year, students will be asked to provide email addresses for themselves and their parents. Parents are included because they are frequently affected by after-school meeting schedules, fundraising activities and the intense six-week robot design/building phase. It is important that these events be communicated to everyone. The list of email addresses will be distributed to the team so that students may coordinate carpools and participation with others. However, emails to be broadcasted to the team and/or parents will be routed through the adult responsible for team emails (Email Blaster) so that information is timely, accurate, and not in conflict with other emails. Please allow at least 24 to 48 hours in advance of when you want the Email Blaster to broadcast the email.

Please check your email **daily** (after school and nights) for announcements of upcoming scheduled meetings, as well as last minute announcements. It is your responsibility to respond to the person coordinating the activity (and not the email blaster).

If you and your parents do not have the ability to receive email, please let your School Advisor know so arrangements may be put in place to keep you informed. If your email address changes, please inform your School Advisor and/or Email Blaster, so your records may be updated and you will not miss any communiqués. Your new contact info will be broadcast to the team.

Website

The goal of our website (www.PowerKnights.com) is to be one of the best sites in the FIRST organization - innovative, informative and always serving the common good of FIRST.

Each year the active webmaster will choose/mentor a freshman or sophomore to manage and monitor the website. There are many sections to our website: team history, team awards, team news, team calendar, forums, photos, etc.

The website also has a calendar of activities. All activities are posted on the calendar and students and parents are urged to check it often. All students are encouraged to view the site regularly and become active participants/users. Please be careful about your comments and responses as they reflect upon our team.

Mentors

The success of the team is highly dependent on skill sharing. This skill sharing process is called “mentoring.” A mentor is a close, trusted, experienced counselor or guide. Mentors work one-on-one or with a small group on selected projects. Mentors guide the work process, get their hands “dirty” only when needed, but in general, their duty is to guide the student in task management and accomplishment.

Mentors need to have good communication skills, an ability to communicate at the student level, patience, a high frustration tolerance, gracious professionalism, respect, but most of all, they need a good sense of humor. Also, one does not need to be an expert to help the team. We each have skills and experience that young people do not have and your contribution to younger teammates is valuable. Please consider being a mentor.

Team 501 will provide appropriate instruction to mentors so they may be successful in the process. All mentors are accountable to the School Advisors and/or the Steering Committee. If needed, mentors may need a background check (to possibly include fingerprinting); this cost will be paid for by the team. This generally applies to any adult working with students. All adults working with students are, by default, mentors.

At any event either sponsored by or participated in by Team 501, there will be no one-on-one contact between students and adult mentors (with the exception of children and parents). This means that a single adult must always have at least two students present, and a single student must always have at least two adults present. The exception to this rule is with adults who have successfully completed the required background check, who may be left alone with one student.

Engineers/Mentors

In their professions, engineers and mentors are responsible for many innovations. These professionals dedicate many hours of their personal time to the team. Their expertise allows the dreams and ideas of the students to be transformed into reality.

Take the time to communicate and get to know these very talented and nice people. Ask them questions and do not hesitate to ask advice for they have a wealth of knowledge. They are valuable resources.

Students shall treat the engineers, mentors and other adults with respect at all times. When addressing them please use appropriate titles unless asked otherwise. Adults will also maintain proper decorum in dealing with students and adult peers. The FIRST mantra of “Gracious Professionalism” is not just a motto, but a way of life.

Work, Behavior and Safety at Build Venues

Work:

The team frequently meets at various locations including sponsors and affiliated High Schools during build season and throughout the year. Transportation to any build location is the responsibility of the students or parents.

Brainstorming meetings are open to all students and are a place where students should feel free to express their ideas. However, before attending these meetings, students are required to have previously read the game handbook in order to know such things as how the game is played, the game rules and how points are earned. Students should also know robot final design restrictions, such as height and weight. Having this knowledge will enable students to have feasible design ideas to put forth before the team.

Since there are many students on the team, not all students can be at the same venue at all times. A schedule will be made up by either the Mentors or the School Advisors so students will know what times are available for them to work. Please understand that the work is often intense, stressful, and needs to be done in a short period of time. There are times when only experienced students will be invited to attend. Students may not go unless invited. Students should not volunteer with the mentors for a position in building unless truly committed to see the task completed.

Behavior:

During periods of slow building, students should not be idle. If there are too many students, someone should either consider leaving or choose to stay active and involved by getting together with other students and going over the game rules and strategies, or even by doing homework. Students may call/text their ride, but should not be playing games on their phone.

Since mentors do their paid job during the workday, students are not allowed to call them without going through the School Advisors. If you are allowed to call, please keep the conversation short. If it is important and you can't reach the School Advisor, please use email to reach the person. They will respond as time allows.

When invited to go to any work site, please treat their offices, building and all employees with respect. Voices should be kept low and students should stay in the designated areas at all times and with other team members. Inappropriate behavior will not be tolerated. Students will comply with all behavior requests made by an adult, such as a team parent who might be there to bring food or to help with robot build.

Students are not to touch anything at these build sites that is not directly related to the FIRST program, for example, connectors on lab benches or testing equipment in the lab.

Remember, we are the guests of the corporate sponsor at their work venue.

Safety:

Due to the zero-tolerance safety policy, students who act inappropriately or intentionally behave in a way that could pose a safety issue will be asked to leave. The student(s) involved will then have to speak to a corporate sponsor employee, or if at one of the affiliated High Schools, to the School Advisor, to get permission to come back.

Students must immediately report any potential safety hazards such as a broken machine or a coolant or oil spill. Students must also report any broken tools, drill bits, etc. Don't panic if this happens. We understand that sometimes things will break, but it is important that you let either a corporate sponsor employee or a School Advisor know right away so they can replace the drill bit, etc.

Students need to be trained on machines and tools before using them. If you don't know how to do something, please ask a corporate sponsor employee whoever is in charge at the work site.

At Team 501 Build Space

In addition to the general guidelines outlined above, any specific policies and procedures for the Team 501 Build Space will be explained prior to a student or parent's first trip to the facility. All team members are responsible for knowing and following the venue specific practices.

At BURNDY

In addition to the general guidelines outlined above, any specific policies and procedures for BURNDY will be explained prior to a student or parent's first trip to the facility. All team members are responsible for knowing and following the venue specific practices.

At Dyn

In addition to the general guidelines outlined above, any specific policies and procedures Dyn will be explained prior to a student or parent's first trip to the facility. All team members are responsible for knowing and following the venue specific practices.

At Intelitek

In addition to the general guidelines outlined above, any specific policies and procedures Intelitek will be explained prior to a student or parent's first trip to the facility. All team members are responsible for knowing and following the venue specific practices.

At West High School

In addition to the general guidelines outlined above, any specific policies and procedures for Manchester High School West will be explained prior to a student or parent's first trip to the facility. All team members are responsible for knowing and following the venue specific practices.

At Goffstown High School

In addition to the general guidelines outlined above, any specific policies and procedures for Goffstown High School will be explained prior to a student or parent's first trip to the facility. All team members are responsible for knowing and following the venue specific practices.

Team Co-Captains

The Team Co-Captains are student team members who are the team's representatives at Manchester High School West and Goffstown High School. Their duties consist of assisting the School Advisors with team business or activity in their respective school. This could be within the realm of passing and collecting necessary documents, checking on facilities or activities within their school, and other needed administrative chores. The Co-Captains should check and respond to emails and other forms of communication at least once each day and be available to attend almost every All Team meeting. Most importantly, a Co-Captain should be an example of the mission of FIRST. The Co-Captains will be the main leaders for other students to turn to. The Co-Captains will work closely with the School Advisors, the Steering Committee and mentors, representing the students and their viewpoints. Should a Co-Captain fail to live up to his/her duties, as agreed upon by the Steering Committee, the Steering Committee reserves the right to remove the Co-Captain and name a replacement. The Co-Captains are a voting member of the Steering Committee.

Qualities that a Co-Captain should possess include, but are not limited to: being a leader and enthusiastic, having a positive influence on other team members, be encouraging and helpful to new team member to find their place on the team, and being able to handle criticism.

To be a Co-Captain candidate, the following prerequisites are necessary:

- Must have at least one year experience in the Team's FIRST Robotics program.
- Must maintain all school prerequisites regarding grades and other issues.
- Must make a commitment to attend and represent the students at Steering Committee meetings.

The election of a Co-Captain is as follows:

- Anyone interested in running must submit a letter of intent to be a candidate for a Co-Captain to the School Advisors by a date set by the Steering Committee.
- On that date, the candidates will interview with the School Advisors to review the obligations involved in becoming a Co-Captain.
- The Steering Committee will select the Co-Captain(s) prior to Kick Off.

The Co-Captains' term will be for the current academic year, after which the re-selection process must be held to determine the next Co-Captains. The Co-Captains may be re-selected and there is no limit to the number of terms they can serve.

Drive Team Selection

Drive Team:

The Drive Team consists of a driver, operator, human player and coach. The driver, operator and human player shall be chosen from the students on the team; the coach shall be chosen from the adult mentors.

Each candidate may be required to pass a written test based on their knowledge of the game and the basics of the robot. Students wishing to drive the robot must know the rules of the game. Driving and operating practice is required to develop the necessary skills.

The Drive Team is required to stay with the robot at the competitions. A major responsibility is the maintenance and repair of the robot.

Selection Criteria:

Some general criteria to be used when selecting the Drive Team will include sportsmanship, grades, participation, ability to fix the robot, strategic understanding of the game, driving skill, leadership, tact, diplomacy and ability to perform under pressure. Team seniority may or may not also be a consideration in selecting the Drive Team.

The Drive Team is usually chosen during the fourth week of the build period. Selection criteria will be identified after kick-off and prior to Drive Team try-outs. This is the time period when it is crucial to become familiar with the robot and the rules of the game, as they will be included in the selection criteria. Once chosen, the members of the Drive Team will remain in place as selected, unless a change is deemed necessary by either the Selection Committee or the Steering Committee.

Selection Committee:

A committee consisting of the School Advisors, two engineering mentors and up to two team students will select the main Drive Team and a backup team based on a competitive selection process. The School Advisors and engineering mentors will select the two student members for the Selection Committee.

The students who serve on this committee will be expected to meet with the School Advisors and engineering mentors to refine the Drive Team selection criteria and to be available to observe driver/operator/human player tryouts. They may also help develop the written test and hands-on tests given to the Drive Team candidates.

Students who serve on the Selection Committee may not be candidates for the Drive Team.

The Selection Committee will also decide the roles of the primary and backup Drive Teams in competitions. Students selected as the primary driver, operator and human player for the Drive Team will compete at both the local competition and the travel competition, unless a Drive Team member is not going to the travel competition, in which case, one of the backups will be selected to take their place.

Should a tryout for a specific Drive Team position be held at a different location or time than the other positions, an adult team mentor must be present at the tryout.

FIRST Robotics Competitions (FRC)

Each year, the PowerKnights FIRST team usually participates in two FRC regionals. These may both be at the regional level, or one may be a regional event and the other, the Championship competition.

When attending a competition requiring travel, hotel and meal expenses, students will be expected to pay for their portion of the costs incurred by the group as a whole. These costs are estimated well in advance of the trip and may be covered by funds raised through the student's participation in fundraising activities or direct payments.

Schedule:

All competitions take up three days (excluding travel) and generally follow the same schedule:

Thursday: The Drive Team and selected pit crew members arrive at the event early to set up the pits, unpack the robot and start the robot inspection. This is a busy time. The remaining team members need to cooperate and follow the requests made by the School Advisors or engineering mentors.

Friday: This is the start of seeding rounds. It is expected that all team members are together as a team and support the Drive Team as they compete. Activities are scheduled and brief informational meetings are held as needed. These communication meetings are required for all team members.

Saturday: Seeding rounds are completed and final competitors are announced. Finals matches are played. Afterwards, an award ceremony is held. All team members are required to attend. Some team members may be needed to help pack the crate and robot. If necessary, the team departs for home unless a Sunday activity and travel is planned.

Regional Events/Championships:

There are currently over 40 regional events held in the U.S. and internationally.

Historically, Team 501 has attended a second regional competition. The purpose of this activity is two-fold. The first is to go and compete at a different venue from our local regional. The second reason is to expose students to other parts of the country, its culture and heritage and to broaden the student's appreciation of the United States. We make efforts to provide educational and cultural experiences during non-competition times (evenings and possibly the day before and/or after a competition). The nature of these experiences depends upon availability and cost of the experience.

Which regional event we attend is dependent upon location and timing of the events, and whether or not we will be attending the Championship Event. The Steering Committee, with input from the mentors, will decide which competition the team will go to. It is not obligatory that the team travels and competes in a second event and doing so may or may not occur. A second event is an earned privilege.

The Championship Event is very similar to a regional event in many ways, but on a much larger scale. There will be teams from all over the world! Championship travel is usually late Tuesday afternoon or early Wednesday morning. Students travel in groups at all times. At no time will a student be without a "buddy" and they will always keep the School Advisors or group leader informed as to their whereabouts. Students are expected to be back at the hotel at the predetermined time for a team meeting.

Competition Protocol:

There are certain practices that we have found to be very successful and have earned us many rewards and the respect of the FIRST community.

Cheering: Cheering is more than just yelling at the top of your lungs. True cheering is enjoying the event and celebrating the excitement of the moment. Organization is the key to this being a powerful tool. Your spirit leaders will give you direction and guidance for this activity. You are not expected to be cheering 100% of the time, however, when we are cheering, all team members are expected to stand and cheer to the best of their ability. Sitting in the stands looking bored or carrying on personal conversations while others are cheering is not good for the team image.

Award Ceremony: During the ceremony we will applaud the teams that are winning awards. When we applaud we will stand to show our respect for what they have accomplished. In the event the team wins an award, the team will, if FIRST allows, go to the field and receive the award and return to our seats.

Pit Etiquette:

Space is limited in the pits and safety is the first priority. There will be a Pit Safety person in charge of maintaining all safety procedures established by FIRST at the competitions. The Pit Safety person will be responsible for monitoring the number of people authorized to be in the pits. The Pit is generally a crowded area ten feet square. We ask that the pit area be reserved for the Drive Team and maintenance team members. Please do stop by and visit, but stay only if asked.

Pit visitors **must** wear safety glasses at all times!

Things We Do Not Do At An Event:

- Students may not play cards or any other games while in the stands as a competition is taking place. This also includes excessive use and/or playing on cell phones, including texting and tweeting; electronic gaming and activities as such. Refer to your affiliated High School's Student Handbook. Students should be actively engaged in the competitions at the event.
- Our team will not engage in negative behavior toward another team or team member.
- Our team will not display displeasure over any decision by a referee or judge.
- Team members will not exchange negative remarks to each other, no matter what the situation.

Travel

Traveling as a team is exciting and is often the highlight of the year's activities. Traveling to FIRST events is a privilege earned by team members who have maintained good grades and participated in mandatory team activities. Students traveling as part of the team will behave professionally, following guidelines given in your affiliated High School's Student Handbook and provided by the adult team members. Remember, while travel to a second event has historically occurred, it may or may not occur yearly.

Usually, the entire travel group goes for the full duration of sightseeing and competition. However, if a student is unable to attend the full duration trip, they may attend just the competition if they travel with a parent or legal guardian and make their own airline reservations.

During the summer months, the Steering Committee will consider various regional/national FIRST competition sites to attend. Final decisions will be voted upon before the beginning of each school year. Team members will be informed about tentative travel arrangements in September. Students will be given general information about travel dates, costs and deadlines. During the next few months, students should be participating in mandatory and voluntary team activities, as a minimum number of hours of participation are required for travel. Do not wait until the last few weeks to get your hours in (see Requirements for Team Travel). As the travel date approaches, students will be asked to make deposits and submit signed travel forms. Unless otherwise approved by the Steering Committee, all travel expenses are to be borne by the student. Students and parents will be required to attend travel meetings to review details of the trip.

While on the trip, students will be asked to travel with a “buddy” and often stay in small groups with a chaperone. The team will travel together at all times with no variation in itineraries. College visitations with a student’s parent/legal guardian may be allowed with prior approval. In addition to FIRST competitions, time will be made available for sightseeing and other fun activities. Students will be assigned roommates for hotel stays and roommate requests will be considered. If a student would like to consider going on a team trip, that student is encouraged to watch for all Travel Coordinator announcements.

Requirements for Team Travel:

- In order to participate in a team planned trip, students must have participated in all mandatory activities and have completed 30 hours of voluntary activities (see Participation)
- These requirements must be completed by March 1
- Travelers (students and adults) must meet all qualifications of a good team member (see Qualifications)
- Travelers must meet all travel payment dates set by the Travel Coordinators
- Students requesting specific accommodations must contact the School Advisors regarding travel arrangements
- Students over 16 must have a valid picture ID (Driver’s License, Passport or NH issued identification) by the date selected by the Travel Coordinators
- Students under 16 may use their School ID
- Insurance card (or photocopy)
- Travelers must have all signed required permission forms in by the dates selected by the Travel Coordinators
- Travelers must travel with one suitcase and one carry-on, with name and address identification tags attached
- Travelers are responsible for carrying their own luggage
- Travelers must attend a Safety Committee Meeting
- Students under 18 may not travel in a private vehicle without written parental permission

Air Travel:

- Departure: A designated time and place will be announced. Be on time, we cannot wait for any students.
- Security: Airport security is tight. Follow airport directions for baggage claim and boarding bus to the hotel.

- Students will stay as a group and follow all TSA directives and rules.

Hotel:

Students will be organized into room groups of two, three or four students depending upon number of students and room availability. We try to honor all requests for roommates. A chaperone is assigned to monitor and coordinate activities. Room keys are distributed at a designated location. Your chaperone will be available for questions.

Behavior Expectations:

Students and chaperones are expected to behave in a professional manner as they are representing the school and the team. Everyone is expected to follow the student handbook, the policies of their affiliated High School, and the expectations of the School Advisors, mentors and chaperones. Students must not leave a venue or hotel without notifying the School Advisors or chaperone. Students will utilize the buddy system. No alcohol consumption or smoking is allowed at any time during team travel by either students or chaperones.

Travel Chaperones:

Only adults who agree to travel with the team at all times and follow the set itinerary completely, are eligible to be chaperones. In order to keep a large group functioning smoothly, chaperones will not be allowed to take side trips, see friends/relatives in the area, or arrive/depart at different times. Those parents/mentors who would like to travel with their own itineraries are welcome to do so, but must make all travel arrangements (hotel reservations, airline reservations and meal arrangements) themselves. Chaperones will be assigned to be responsible for small groups of students when traveling. Students will be assigned to these small groups by the Travel Coordinators. In the event of a shortage of seats (e.g. bus transportation), only one adult chaperone per family will be allowed to travel.

Financial Oversight

The current policy pending 4-H approval is that all funds raised, donated or expended must follow Manchester School District protocol. Any donation received over \$999.99 must be deposited into the Manchester School District account. All other income will be given to the school accountant for deposit into the Manchester High School West FIRST Robotics account. These accounts are audited to verify that accurate records are kept.

Requests for non-build purchases of over \$50 by anyone (advisor, mentor, chaperone, parent, and student) must be approved by the Steering Committee. Reimbursements of these non-build related items over \$50 from the team's general fund to anyone (advisor, mentor, chaperone, parent, and student) require approval of the Steering Committee prior to the expenditure and must be signed off by the appropriate pre-assigned Adult Coordinator and/or the School Advisors. Expenditures become the responsibility of the individual unless and/or until approval by the adult coordinator and/or Steering Committee for reimbursement from the general fund has been determined.

When a check needs to be issued, the requester must submit an invoice or proof of the occurred expenses in order to receive reimbursement. The request, with documentation, is given to the West School Advisor, who submits the paperwork to the school accountant. A check is usually cut within two weeks and forwarded by the West School Advisor to the requester.

The school accountant only provides an income/expense report with no detailed references. A running balance can be provided to the West School Advisor and/or the Steering Committee at any time. Detailed reports will be kept by the Financial Overseer of the team.

When the team is approved as a 4-H Club, this section will be updated to conform to NH 4-H policy.

Fund Distribution Guidelines

Guidelines for the allocation of money received as a result of fundraising efforts during the 2012-2013 school year.

There will be a general fund which includes the student travel fund

All corporate sponsorship revenue will be placed in the general fund.

General funds will be used to pay for registration fees, robot building, spirit merchandise, advertising and all other in-common expenses.

Student travel funds will be used to pay for student travel expenses.

Parents/students who pay deposits for travel expenses and later fundraise may be reimbursed up to the amount received from the family. However, monies earned by fundraising will not be distributed in cash to any student..

Prior to all fundraising events it will be determined by the Steering Committee how to allocate the raised funds by following the guidelines below.

All funds raised as a result of direct appeal to businesses and corporations will be put into the general fund to be used to off-set in-common expenses (registration fee, robot building fees, operating expenses).

The team will make every effort to honor sponsor requests of allocation of funds not to exceed the corporate donation.

All funds raised through team fundraising activities will be put into the student travel fund to be used to off-set expenses related to team travel and other in-common expenses associated with competing at events (button making material, banners, mascot costumes).

No travel funds will be allocated to chaperones other than the School Advisor.

Mentors/chaperones must pay in full for their own portion of travel expenses by the due dates set for all deposits or they will not travel with the team. No funds from the general fund will be allocated to the mentors or chaperones travel expenses.

The cost of operating the team changes every year. There are fixed costs controlled by the FIRST organization and uncontrolled costs based on the cost of robot parts and the number of student team members traveling to competitions. The priority of general fund expenditures will be first to the in-common expenses and then to individual team member travel expenses.

The General Operating Fund will provide the seed money for the competition year.

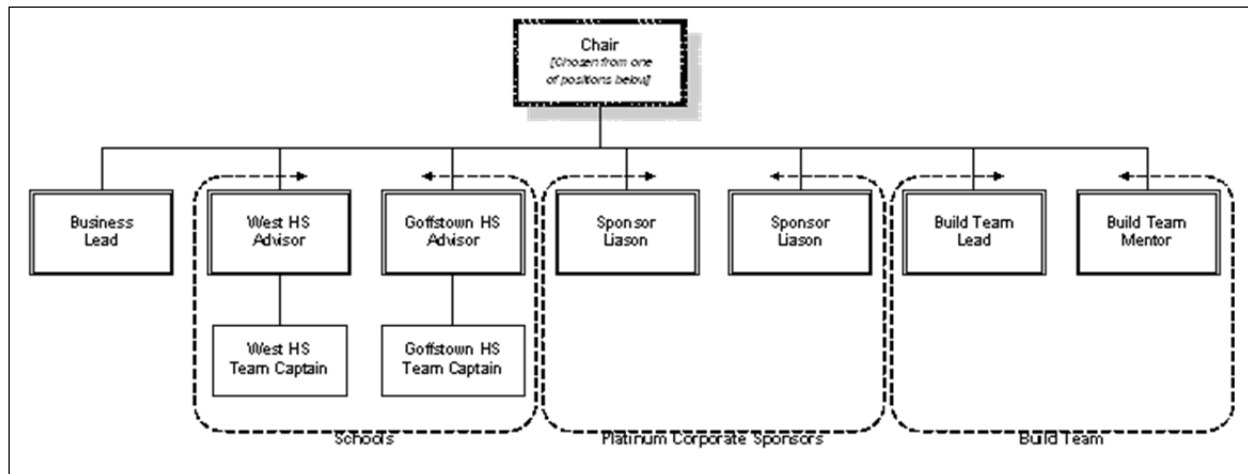
The goal of the team will be to end the competition year with a General Operating Fund balance equal to entering the next year's local competition and the cost to build the robot.

The Steering Committee reserves the right to amend these guidelines as necessary throughout the team year.

Steering Committee

The Steering Committee, with representation from the sponsors, schools, and build mentors, is responsible for providing oversight of the team and ensuring adherence to the tenets of the FIRST program. The term of the committee shall correspond to the program year of the team (July 1st to June 30th). Given the importance and responsibilities of this group, members are expected to attend all meetings throughout the year.

The committee is composed of adult voting members, as well as the student Team Captains from each represented school. Each platinum corporate sponsor appoints a member, each represented school principal appoints a member, the build mentors appoint two members from their ranks, and the Business Subcommittee appoints a member. The membership shall be adjusted as necessary to ensure an odd number of members in order to prevent tie votes. For the 2012 – 2013 season, the size of the committee is 7 adults and 2 students. Committee members may serve multiple successive terms, in the same or different roles. The committee will also elect a Chair position from its membership as the first order of business at the first meeting of the year. The Chair will be responsible for organizing and running meetings and coordinating activities; but will have no additional voting rights.



The Steering Committee shall provide guidance with team goals such as financial, technical, marketing, educational and business issues. It is responsible for setting regular meetings, making policy decisions, and making sure documentation exists on financials, team decisions, and the robot build process. It will also set and publish guidelines for student escrow accounts and carry-over funding.

Steering Committee meetings are open to all students, parents, school faculty and administration, mentors and sponsors – but only the members of the committee itself are empowered to vote on items.

School Advisor: Each school affiliated with the team shall have a designated advisor as their agent and representative. The Advisors are primarily responsible for ensuring that all district and school policies are followed.

As the school and district agents, they have the final word on team issues related to district and school policies. In addition, the Advisors will be responsible for a great deal of the day-to-day team management.

In addition to the Steering Committee, there are a number of subcommittees and other positions in the team organizational structure. These are detailed in the following paragraphs. All subcommittees and other positions report to the Steering Committee, but are expected to cross communicate and expedite their responsibilities. It is imperative that all who volunteer for a subcommittee complete their tasks in a timely and conscientious manner. If these tasks cannot be accomplished or if you are unable to carry out your assigned tasks, it is your responsibility to tell your lead Mentor or a School Advisor that you need help.

Subcommittee Descriptions and Functions

Each of the subcommittees described below are comprised of students and adults who are responsible for carrying out the specific functions of that committee. Commitment and follow-through are crucial to accepting any assignment. As one of our corporate mentors once said, "If we all do our little jobs, the big job gets done." (Patricia Ballard, BURNDY) Regular communication between subcommittees is essential for the smooth functioning of the team.

Financial (Fundraising):

The Fundraising Subcommittee is responsible for planning and carrying-out fundraising activities. The proceeds from some fundraising events directly benefit the students that participate, while money from other events is added to the team's general fund.

Fundraising is a vital part of our team and an activity with many benefits beyond the financial. Fundraising involves people skills and it can be a lot of fun. There will be several activities to participate in, something for everyone. If parents have an objection to their student participating in any fundraising event, they should speak to their School Advisor to discuss an alternative arrangement for their student's contribution.

Financial (Treasurer):

The Treasurer provides the team with a detailed account listing of the following items:

- Donors and their contributions
- Income from various fundraising
- Budget preparation
- Expenses and the reason for the expense
- Accounting of student travel balances

These account listings will be held in a separate set of books that will provide a detailed summary of income/expenses for future analysis.

Financial (PowerKnights Ambassador Program):

This program was developed to build a strong corporate sponsorship program solicited by the students. The Ambassadors are members of the PowerKnights team who are trained in business etiquette and presentations. Students visit corporations and present the team's mission and accomplishments. Ambassadors may ask for financial and/or in-kind sponsorship. They will be prepared to answer such questions as "How can my company

help the team?" All team resources will be used in these presentations - short DVD clips, brochures, website references. We hope this will lead to a closer relationship with our corporate donors and, in turn, expose our student Ambassadors to the workings of the business world.

Community Relations (Publicity):

The Publicity Subcommittee manages the team's image and community presence by the frequent, timely, and effective design and release of communications about the team and its activities. They create such items as a team resume to be distributed at competitions, newspaper articles, brochures for fundraising and public awareness events. During the six-week build process, weekly updates are created. The team will use a variety of media, including a digital format, to enhance write-ups. All team members are encouraged to try their hand at writing during their career as a PowerKnight and to contribute their ideas for publicity.

Community Relations (Spirit):

The Spirit Subcommittee is responsible for designing and acquiring the team attire, including costumes, t-shirts and buttons. They are responsible for passing out team buttons and giveaways at competitions, team banners and flags.

The Spirit Committee coordinates with the Publicity Subcommittee in organizing community activities such as the Christmas Parade, public awareness demonstrations, visiting area middle schools, and community service activities.

Travel:

Travel planning is required for attending either a second regional competition or the Championship Event. Duties include making hotel reservations, arranging transportation, planning sightseeing activities, planning meals and coordinating other travel-related arrangements for the team. Responsible for planning, budgeting and researching all aspects of travel related to designated competitions.

Other duties include creation and collection of travel forms, collection of payments and establishment of due dates, reservations/confirmations, transportation - air and/or bus, hotel arrangements - including room assignments, sightseeing arrangements, restaurant and/or meal planning, liaisons with Manchester High School West and Manchester School Board for trip approval, chaperone identification, and coordination of all check-in and check-out procedures for airlines and hotels.

This group is not responsible for transportation for the robot, tools, supplies, banners, costumes, etc.; arrangements for those attending only part of a planned trip (e.g. attending only a few days of a planned itinerary); anyone who is not a team member (e.g. siblings); Nonrefundable/Nontransferable reimbursements (e.g. airline tickets); student personal items that are lost or misplaced during a trip; homework assignments; healthcare expenses.

Website:

This subcommittee develops and maintains our website: www.PowerKnights.com. Members of this team need to have internet access at home and have or be willing to learn basic website editing skills.

Animation:

If Autodesk software expertise exists within PowerKnights team members, an Animation Team may be formed to create a 30-second animation video that addresses the published Animation Award subject of the year. The final result may be submitted to FIRST for judging with all other regional competition entries.

Video:

Throughout the year, the Video Team may have multiple tasks to accomplish:

- Create a video that will document all aspects of the PowerKnights FIRST experience. A shortened version of it may be used to help with publicity or fundraising efforts.
- Record the activity of our robot during practices and all competitive matches. This will enable the team to analyze its performance, as well as the strategies used to play the game.
- Film the performance of other team robots. This can be helpful for formulating game strategies.

The students on this team should have an interest in using the video camera and doing editing using computer software.

Design and Build:

First and foremost, subcommittee members are responsible for knowing the current year's game manual, including robot specs and game rules. They are responsible for maintaining current robots and tools. They develop the robot and work in the pit area at the competitions. They will be responsible for inventory of parts, storage and labeling, and sign-out maintenance.

Manchester's River Rage and Other Local Competitions

All robotics teams have invested time, effort and money into building their robots. A team from Plymouth, MA, decided that it was a shame to put this effort and fun away until the following January. They decided to put on a one-day local event to continue the momentum; it was called "Rumble-On-The-Rock." Today, there are several one-day local events throughout the country. Team 501 usually attends "Mayhem-in-Merrimack" and our own "River Rage."

River Rage is a local event jointly sponsored by the Manchester High Schools. The event is held at one of the high schools. River Rage, started in 1997, is the oldest of all local events in the world. The Powerknights contribution to the effort is to help set up, teardown, cook and help with organization. Manchester High School West is the prime mover in this event.

The philosophy behind the local competitions is to let students have fun. Any student is allowed to drive, operate, or be the human player in these events. Typically, students take turns in each of these positions. Students learn what it takes to be in the "hot seat" for those two minutes and how well they can handle the pressure. Parents are invited to coach a match to understand what the pressures are during a match. Locals are our training sessions for future drive team members.

FIRST LEGO League / FIRST Tech Challenge

FIRST has three educational programs. The oldest is FIRST Robotics Competition (FRC), the second is FIRST LEGO League (FLL), and last is the FIRST Tech Challenge (FTC). PowerKnights students are encouraged to become mentors.

FLL follows the same philosophy as FRC, but is partnered with LEGO blocks. FLL is designed for elementary and middle school students. They also get a game challenge, need to build a task-oriented robot with LEGO pieces, and

work as groups just like a FRC team. The major differences are that the FLL season is from October through December, and the second is that students are mentored by high school FRC students, many of whom are graduates of that FLL middle school.

FTC is designed for high school students using a FIRST approved kit. FTC also has a game challenge, need to build a task-oriented robot, and work as groups just like a FRC team.

Off-Season Activities

The PowerKnights are a year round team. After our last FIRST competition, the team becomes active in other areas. Foremost are the local competition events, where all team members have the opportunity to drive, operate, coach and be the human player. Other activities may include team building events such as hiking or softball games, participating in the Manchester Christmas Parade, fundraising, community service events and demonstrations for service groups. When offered, team mentors work with students on technical problems.

College and Career Opportunities/Scholarships

The Powerknights FIRST program is an excellent way to explore the career of engineering. During this program, students will be exposed to many principles of engineering and the mentoring skill of engineers from corporate sponsors. We recognize the fact that not all students will pursue careers in engineering. It is our goal to expose students to technological careers including, but not limited to, engineering. We highly encourage all students to discuss the career of engineering with their mentors and/or corporate engineers. Students are encouraged to take pre-engineering, math and science classes during their high school experience. BAE Systems in Nashua offers career awareness days which students are encouraged to attend.

There are many scholarship opportunities associated with the FIRST program. The School Advisors will provide information regarding these as soon as they are made available. There is also information listed on the FIRST website at www.USFirst.org. In 2012, over 15 million dollars in scholarship awards were available to FIRST robotics team members.

Parent Responsibilities

Parents are an integral part of our team and are very important to our continued success. Parents are also a key factor in the motivation and dedication of their student. Supporting their son/daughter in all aspects of their team involvement is key to them getting the most out of the program. Parents are encouraged to participate in team activities whenever possible.

Parents have several responsibilities. They are:

- Parents are encouraged to participate as mentors, offering their guidance and expertise on various subcommittees. Parents working with students are by default, mentors.
- Parents must be the prime leaders in the FIRST philosophy of “Gracious Professionalism.”
- Parents are expected to assist their student in all fundraising activities.

- Parents are expected to attend mandatory meetings unless they have notified the School Advisors in advance or their child is legally an emancipated minor.
- Parents are expected to provide timely transportation for their student, making sure they are at the required event or meeting point on time and ready to participate. Transportation includes, but is not limited to, the following:
 - to/from local events, after school meetings/work sessions, weekend work sessions, and local competitions.
 - to designated pick up points for team travel at the specified time. Often we will leave for a competition very early in the morning to facilitate transportation. We will not delay transportation.
 - from designated drop off points for team travel at the specified time. Late transportation causes an inconvenience to all involved.
- Parents are expected to provide accurate medical information and to keep the School Advisors informed of all changes.
- Parents are expected to participate in the team's primary fundraiser River Rage Competition by assisting with food service, set-up and teardown.
- Parents are also expected to provide spending money as is appropriate for events or competitions.