FIRST ROBOTICS COMPETITION (FRC) TEAM HANDBOOK

Table of Contents

Welcome

Thank you for your interest in starting or maintaining a FRC team. Your efforts will inspire students to explore careers in engineering, science, technology and result in some of the hardest fun you'll ever have.

FIRST Overview

FIRST (For Inspiration and Recognition of Science and Technology) was founded by inventor Dean Kamen to inspire young people's interest and participation in science and technology. *FIRST* is a 501 (c) (3) not-for-profit, public charity based in Manchester, N.H. *FIRST* is volunteer-driven and built on partnerships with individuals, businesses, educational institutions, and government. Some of the world's most respected companies provide funding, mentorship time, talent, and equipment to make *FIRST*'s mission a reality. As a volunteer with a *FIRST* team, you are in good company.

FRC

FIRST introduced the *FIRST* Robotics Competition (FRC) in 1992. Each year FRC unveils a new challenge at Kickoff in January. High school aged students work with professional mentors to solve the engineering design problem in just six weeks, then join other teams in alliances to play the game at competition events where they are judged on design, innovation, culture changing behavior and performance. The program is a life-changing, career-molding experience and it's a lot of fun.

Pre-Season

The time between kickoff and competition is so action packed that few (if any) mentors have time to spare. In order to succeed in your first year in FRC, it is a good idea to start preparations well before the season begins.

If you can, go to an off season or community event

Many mature teams hold demonstrations and participate in team sponsored events during the off season. Off season events give teams time to practice their skills and try out new ideas. As a new mentor, attending an off season event will give you an idea of what you're getting yourself into and provide examples of how teams function. *FIRST* Regional Directors and Senior Mentors will know of off season events happening in your area. They can also connect you with other teams that may be willing to share their experience with you.

Recruit engineers and additional adults

Don't try to go it alone. There's too much to do. Build a Mentor Team by recruiting as many adults as you can. The more variety they have in their backgrounds and skills the better. You will need technical mentors for robot design and build. You will also want mentors who are willing to take on programming, fundraising, travel arrangements, communication and a host of other aspects of the FRC program. Diversity in your mentors (having a mix of genders, ages, ethnicities, experience and education) will strengthen your team and encourage participation by a variety of students.

Mentors have to facilitate the workings of the team, deal open-mindedly with personality clashes within the group, and have the final say for the good of the whole, so communication and interpersonal management skills are important. Mentors should also be comfortable with letting the students 'do it themselves'. *FIRST* encourages the 'hands on' method of learning. We believe the more each student is

allowed to try, the more confidence and knowledge she/he gains from the FRC program. Make sure your mentors enjoy working alongside high school students and are comfortable letting students take the lead at times.

Look beyond your immediate family and friends. Does the school you plan to partner with have science, technology, industrial arts or other staff who would be interested? Is there a college or university nearby that offers engineering courses? Ask both faculty and students if they'd like to participate. Some colleges and universities offer their students credit for participating in *FIRST* programs. What are the major employers in your area? Many businesses recognize that engineers and technical staff who participate in *FIRST* programs return invigorated by the experience and excited by the contacts they made during the season. Recruiting mentors from multiple locations will give you multiple contacts when the time comes.

As you recruit help, consider the roles you will need to fill. FRC requires each team to have a Main Contact and an Alternative Contact for the purposes of communication with *FIRST*. These two (2) key volunteers must understand the importance of providing a conduit between FRC and the rest of your team. The Contacts do not necessarily have to be the hands-on mentors, but must be post high school adults.

Draft a financial plan

If you are a new team, develop a team mission statement and business plan, and decide what your team goals are for the first year. These will help you develop a budget and determine fundraising targets. Don't forget to include funds for the registration fee, travel costs, robot and field construction items, publicity and sponsorship materials, plus off-season event participation. The minimum budget for a team attending one Regional competition or two district events should be $10-12k. Refer to the sample budgets in the Appendix for examples of some of the line-item costs. Once you have experience as a team, it becomes easier to plan ahead.

Find financial sponsors

We recommend you begin your fundraising efforts well before the extremely busy build season starts in January. It is a good idea to schedule fundraising activities throughout the year.

The Prospects

1. Look for companies that:
    - Produce innovative products and have a reputation for creativity.
    - Have a high profile in your area related to engineering, computers, hardware or software or community involvement. Also look to industrial or medical suppliers, patent/copyright offices, technical development, information technology, manufacturing and youth-focused corporations.
    - Ask the parents of team members if they have any connections. Perhaps one or more can help make contact with companies in your area through the Corporate Giving Department.
2. Talk to the principal of your students' schools and find out if the education department already has partnerships with local businesses. One of them might be interested in helping you start/maintain a team.
3. Find out who the largest employers in your area are by calling your state representative's office for information. Web search engines may provide leads about technical companies in your area. Many local companies may be interested in helping because they have a stake in your community.

4. Contact the Chamber of Commerce and request the names of companies that might be interested in partnering with schools on a project to help develop a pool of future employees qualified in science and technical fields.
5. Research association web sites, especially those involved with engineering.
6. Submit an article to a local newspaper about your team and indicate the need for funding.
7. Visit the web to find out whether setting up a non-profit organization for your team fits your needs. If so, there are numerous sites offering suggestions to implement, and run a non-profit.
8. Call your local college/university and ask for a meeting. Very often these schools welcome inclusion because they can use the program as part of their curriculum.

The Approach
Potential sponsors will be interested in the positive publicity team sponsorship will provide and the long-term appreciation of a future workforce on the team. Many smaller companies and individuals make great *FIRST* sponsors/partners. For instance, ask a sign company to donate a team banner…and include their name on it. Be sure to tell them, their banner will travel with your team to your event(s) and you will proudly display it in your Pit station.

The Preparation
Before you speak with a potential partner, donor, or sponsor, do some research. Ask around to find the best contact person at each business or corporation. Does anyone on the team know someone who works there? It is best to try for a contact in senior management, such as the head of Engineering or Human Resources. Make sure you have dates and times in mind before you call to ask for and set up a face-to-face meeting.

Be sure to bring all potential sponsors some information sheets from the FRC Communications Resource Center located on www.usfirst.org. You may also want to create some handouts specific to your team.

Know what you need and prepare a list in advance. THINK BIG!! Ask for the full registration amount when you petition for funding, but be prepared to graciously accept any offer of help. If a company can't or won't donate money, ask for services such as machining, mentoring, or the loan of meeting/facility space. Other in-kind donations could include tools, supplies, food, printing, copying, or team T-shirts.

The Presentation
Know what you are talking about when you call or visit, and smile while you are there. Understand what *FIRST* is about, and be sure you can articulate it to others. Be brief, but describe your team's makeup including the number of kids and their ages, team goals, and accomplishments to date. Show enthusiasm!

Provide budget information and the amount you have already raised. Consider bringing a PowerPoint presentation about your team's plans for using the potential sponsor's donation. Whenever possible, bring students to do some of the talking and convincing. Bright, enthusiastic young people are hard to resist!

In your presentation or letter, include some of the donation benefits to the potential partner, such as:
- Promotes community visibility
- Presents networking and marketing opportunities with other sponsors
- Provides a pool for interns and future employees
- Re-energizes and renews the team-involved engineers' love for engineering

An excellent way to reel in recruits is to bring them to an event. If the official competition season is over, find a listing of "Post Season Events" on the FRC "Events" portion of the usfirst.org web site. These off-season competitions run through the summer and fall. Once potential sponsors see the creativity, action, fun, and excitement, there's no holding them back!

If you don't feel comfortable in this role, find (or recruit) someone else who does. The school principal or the science, math, or physics department head might be a good representative. If you already have corporate support, a well-informed representative from manufacturing, operations, IT, or a technical discipline would be an excellent choice for this role.

The Close

Don't forget to come right out and ask for the money. Ask high; they may be willing and able to support your team. If there is silence after your request, don't talk at all. Wait until the prospect responds, even if the silence is uncomfortable. If they are unable to provide full funding, ask for a specific amount for a specific line item. If asking for financial support doesn't work, ask for specific items (meeting space, access to machines, technical support). If nothing works, ask direct questions to identify their objections and listen to what they are NOT saying.

If the meeting goes well:

- Thank the donor
- Specify when you will need the money, item or promised support
- Ask if there are employees who might be willing to mentor the team
- Ask for referrals to additional support sources that may be interested in helping in some way
- Request a digital image of their logo for use on the team's uniform and robot

The Follow Up

Whether or not the prospective partner agreed to help the team, be sure to follow up with a thank you letter within a week. Include a couple of the information sheets from the usfirst.org web site and a team brochure if you have one. Reiterate your budget needs, and write a sentence or two on how their support will positively impact the future workforce of the area. Thank the prospect for the meeting.

If there was a promise of funding, machining, or mentoring support, send a letter of thanks and detail what you understand the agreement to be or what you hope the partner will provide as support. Mention what the direct impact of the donation will do for your team.

For a promise of engineering or technical support, include a list of your needs, the above-mentioned printouts, and a sample teamwork schedule. Provide a synopsis of how you will use their support as well as your team's approach to the design and build phase.

If you send the letter and there still is no commitment, but you saw a glimmering of interest, ask someone on your team with persuasive writing skills to keep the "prospects" in the loop by sending notes about the team's progress during the build phase. Include a picture or two. Generate curiosity. Invite them to an event to see your team compete.

When the season is over, send a picture of your team and robot at an event. Detail some of the experiences, accomplishments, and excitement of the team. If there were newspaper articles, send copies. Schedule a visit to partners, donors, sponsors and potential partners, donors and sponsors for early next season. This works.

Visit the following web sites for additional information and fundraising ideas:

- www.fundraising-ideas.org
- www.fundraiserhelp.com
- www.stepbystepfundraising.com
- www.chiefdelphi.com

Find a meeting place

Ask your sponsoring companies and school(s) for suitable space for your team to meet and build a robot. Survey the area for businesses with unused space they may be willing to loan or rent. Ideally, you will want a machine shop and all its tools for your robot's birthplace. If a machine shop isn't available, consider team size, equipment, work schedule, safety, security and the potential for practice space when reviewing possible locations. Some teams build their robot in a garage! If you are offered a location, be sure to develop a contract with the facility before your first team meeting to ensure understanding of its use, scheduling, etc.

Obtain tools

Your team will need a computer and printer with Internet and e-mail access to download documents and communicate with *FIRST*. You will also need a toolbox and at least the following tools.

Hand tools		P**ower tools**	
Screwdrivers	Tape measure	Drills	Lathe
Allen keys	Clamps	Jig Saw	Mill
Wrenches	Files	Dremel	Bandsaw
Socket set	Wire Strippers	Machine Tools	Drill press
Hacksaw	Multimeter		
Pliers	Soldering iron		
Calipers			

Find a secure place to store your tools and plan methods of inventory, storage and maintenance. A sign-out sheet may help you manage frequently used tools. Remind the team that searching for missing tools or finding an important tool has been broken means lost time and money. A sign out process will also help instill team courtesy and teach important manufacturing discipline as well. If there are tools or equipment that need special care, such as sharpening or oiling, plan to train and assign people to those tasks.

Bookmark important *FIRST* website pages

Use the *FIRST* Web site to stay current with the program, its benefits, and its deadlines. If you and the team become familiar with the website before the season starts, it will be easier for you to check during the season for updates and important deadlines.

Use the links online to find and contact your Senior Mentor and Regional Director. They are available to support you as you mentor your team. You can also benefit from years of team experience by exploring resources provided by the FRC team community.

Rookie teams may want to take a look at last season's game materials on the *FIRST* website to get a good idea what the upcoming season could bring.

FRC posts the *FIRST* Robotics Competition Game Manual (FRC Manual) online in encrypted form prior to Kickoff so that teams may down load the manual in advance then un-encrypt it after the encryption code is released. After Kickoff, teams must visit the website regularly to read twice weekly updates from the Game Design Committee and to check for updated information on events, robot shipping and other aspects of the FRC season.

Identify important deadlines

Important deadlines are listed on the *FIRST* website on the FRC season calendar

Regional Directors and Senior Mentors

Regional Directors and Senior Mentors from *FIRST* want to help you help your team. Regional Directors and Senior Mentors cover specific territories. You can find them on usfirst.org or by calling Team Support.

Team Support

Live team support is available 8:30AM-5:00PM EST from FRCteams@usfirst.org OR 1-800-871-8326 x0 Please choose only one method of contact as leaving multiple messages about the same question slows down the response time for everyone.

October

Register in TIMS

The Team Information Management System (TIMS) is a vital link between teams and FRC headquarters. Your team Main or Alternate Contact must log into this system to:

- Enter your team, contact, and partner/sponsor information
- Receive your team number
- Register for Kickoff and competition events
- Receive Team Email Blasts
- Provide information for judges
- Supply team demographics

Deadlines for information submission are listed in the Calendar of Important Deadlines on usfirst.org. Pre-registration in TIMS begins in August. When you begin the process as a rookie team, you will receive a temporary, seven-digit team number. When you pay for your initial event, you will receive your official, permanent four-digit FRC team number. Official event registration begins in early October and ends in early December.

To complete the TIMS online process, you will need the following information on your Main and Alternate Contacts. (The Contacts must be post high school adults).

Primary address
Primary email address
Phone number
Secondary address, email address, and phone number, if desired (highly recommended)
Permission from at least 1 team Contact to share their information on the web if your team would like to request or provide mentoring assistance

For the team Partners [School(s), Youth Organization(s), and Sponsor(s)], you will need:

Full name of the organization
Contact name
Phone number

Notes about TIMS:

- The Main and Alternate Contacts will each receive a unique password and be able to enter TIMS to add or update information about the team or Contacts.
- The Main and Alternate Contacts will receive emails and updates from *FIRST* during the season. They should be dedicated to making sure they distribute these emails to team members, as appropriate.
- The Main and Alternative Contacts must ensure their email system does not block email from usfirst.org and allows attachments of up to 2 MB.

Register for competition

Event registration in TIMS begins in Early October and ends in early December. Some popular events fill up fast, so now's the time to decide where your team will compete. Registration fees and event locations are listed on usfirst.org.

Keep the following in mind as you weigh your choices:

- Research Grants: If you apply for a NASA grant, read the details carefully. You may be required to register for a specific event.
- Travel costs: Check on hiring a bus if the event is fairly local; and compare train and plane fares if not. Ask the airlines if they give group rates and carefully check the stipulations. Consider having the team stay Saturday night in case event runs long. Compare the hotel cost versus the airfare you save by staying over the Saturday. It may be a wash.
- Arrival and Checkout Times: Check the sample agenda in the "At the Events" section of last year's Game Manual to find general starting/ending times. You will probably want to have a 3-person team, (at least 2 adults) arrive at the hotel the night before so they can enter the Pit to register, set up the team pit station, and begin robot inspection. If you do send an advance team, the rest of the team could arrive in the morning on the first full day of the event.
- Hotel Reservations: Teams research hotels and make their own reservations for competition events.
- *FIRST* does not provide shuttle service from hotels to events.
- Consecutive Weekend Events: We do not recommend teams register for consecutive weekend events when shipping their robot. Back-to-back event shipping is not possible for teams going to international events, including Canada, because of potential problems with Customs and border crossings.
- Shipping and Customs: If you plan to compete internationally, check the shipping and Customs requirements well ahead of time, and be sure to comply with necessary paperwork. *FIRST* does not supply customs paperwork or pay any duties or taxes on international robot shipments.

Complete a W-9

Every team must have a W-9 form on file declaring the tax id number for the individual or institution willing to accept grant money on behalf of the team. Teams must complete this document before they may receive specific grant monies above and beyond the cost of registration. The W-9 form is available on line.

Are you a rookie team?

FIRST recognizes the commitment teams and mentors must make to get a first year team off the ground and for this reason grants qualifying teams rookie status. Rookie status offers teams specific incentives and recognition including access to Rookie grants and the opportunity to earn the Rookie All Star Award. Details are available on our website.

Special note for homeschool teams

FRC does not differentiate between homeschool teams and teams from schools or other youth organizations. Enter a name for your homeschool into TIMS when prompted for your school or youth organization. Every other aspect of participation in FRC remains the same.

Recruit students

FRC team sizes vary between 6 and 100 students, with the majority of teams averaging 25 to 30 students. For your first year, target a team size you're comfortable with, keeping in mind there's a lot of work to be done and students already have a lot of commitments. You can always increase or decrease the team size in future years.

Post flyers where students will see them. Involve teachers at local high schools in the area. Teachers will be familiar with students' abilities and interests and can encourage talented teens to participate. Take things like student grade levels into consideration. Recruit team members from several grade levels to ensure a steady source of returning team members with experience each future year.

Hold an open house for all potential team members, parents, and mentors to describe the program. Prior to the meeting, download the FRC information sheets from the web and distribute them as handouts or post them for all to see. If you can, invite a veteran team to speak and demonstrate their robot. Discuss the time commitment, meeting times, and dates up front with the team and parents. Let everyone know that at times, the team may need to meet every day of the week.

Recruit responsible students with a variety of interests to help manage the business of running the team. Let students know there is more to being on the team than building a robot. There will be fundraising, awards submissions, marketing and cleanup tasks to accomplish. Tell students they are all expected to help with the various aspects of the project. Be sure to stress the project is a long one and dedication is critical to the team's success

Consider an application form. Each team has a different way of attracting and choosing students. Decide if your team should have an actual team application. If you do, give careful consideration to the questions you include. This is a good way to capture contact information at the outset and find out if the applicant has an idea of which sub teams she/he would enjoy.

Consider establishing membership criteria such as a minimum grade point average, age, or grade level. Realize sometimes the best team members are those who haven't yet found their niches. Some teams stipulate that each member has to contribute a certain amount of money toward travel expenses or team "uniform," which could shrink your talent field.

Does your team want to interview each applicant? It's a perfect time to ask questions to determine if the kids are mature enough to work alone. It's also a lengthy and time consuming process.

Consider a "Welcome" letter to those who make the team, and include some team goals, rules, and meeting information. Have a pre-determined, sensitive process in mind to notify those who do not make the team. If the "no" hurts, they may not try again in the future when they are better qualified.

Involve parents

Remember, parents often make great sponsors and mentors. Don't forget this valuable resource. Ask the students if any of their family members are engineers or have useful skills such as machining. You may also find parents with fundraising, programming, or marketing experience. A parent may be willing and able to handle the robot shipment and deadline. All parents can be involved as chaperones or be put to work organizing snacks and food. Ask parents for help regularly during the season. If you can be specific about your needs, parents can often assist you in finding solutions.

Apply for grants

Grants are a good way for teams, especially rookies, to get a leg up on funding. Grant availability varies from year to year, but grants are usually offered right around registration time, so be sure to check usfirst.org often. Read all the details of a grant before applying as some grants require of participation at a specific event, or the involvement of mentors from a specific company.

Hold strategy meetings

It is a good idea to meet with your team mentors prior to the first team meeting with students. Do all the mentors understand their role? Can everyone agree to a common philosophy of working with high school students? Do all mentors have to come to all team meetings? Do you have a method in place for communicating during the season?

Hold strategy meetings with the students as well. What aspects of the FRC program does the group feel are most important? How will group decisions be made? How will tasks be assigned? What can be done if the team falls behind schedule?

Plan team structure

Well-run companies have a management or core group to oversee multiple project-specific subgroups working toward the common goal. Most successful *FIRST* Robotics teams work under a similar framework. Each FRC team has its own personality, organization, and strengths; and each decides its work distribution and methods. Robot design, robot build and robot programming are obvious sub teams, but team finances, travel, and marketing groups can provide invaluable support throughout the season. Before the actual season begins, spread the workload by forming self-motivated sub teams, utilizing your members' unique talents, and giving everyone an opportunity to contribute. See the Appendix for sample team structures.

Strengthen your team with experienced and/or knowledgeable mentors and facilitators. If you know another *FIRST* team, ask the mentors if they can assist your team as you get started. Later in the season, you will be able to opt for help by selecting "would like to be mentored" in the Team Information Management System (TIMS) and by visiting the Virtual Technical Advisor website https://my.usfirst.org/FIRSTPortal/Login/Virtual_login.aspx

Keep groups small and project oriented. Remember the build team sub groups will have to interface often to make sure all mechanisms mesh. Consider rotating roles to strengthen team members' knowledge and experience as well as avoiding cliques. Train younger team members to replace

graduates next season. It's a good idea to have all students on more than one sub group. Find out what each student does well and assign them to a group where they can be an asset. Also put these same students with groups where they can learn new skills.

Coaching advice

Coaches give "Attaboys", Mentors are about "Here's how to do it", and Facilitators are big on "I showed you, now you teach someone else." Your team mentors will probably need to use all three approaches interchangeably. Consult the "*FIRST* Mentoring Guide" on usfirst.org for tips on "paying the knowledge forward" and using communication as the key component for building necessary trust and respect.

Beware: The design and build season is short – just 6 weeks. As team leader, don't ever accept procrastination. The "we have plenty of time" statement is just not true. Keep your team's collective eyes on the calendar and watch those deadlines!

Successful coaching encourages independent thought, open communication, and helps develop working roles within your team. Mentors and students will become united, with the kids learning mentoring skills through example. They become empowered by the ability to contribute, teach, and they in turn will lighten the mentors' loads.

A good way to get your team to have the right attitude is to strive for team consensus about important issues. Promote the concept of listening both as individuals and as a group. Listen courteously without interruption. If discussion drones on too long and team paralysis occurs, facilitate agreement by helping with the topic.

Let the kids work on the robot, and make it a team effort by encouraging group decisions. Supervise the kids, but let them fail once in a while if they have to; it's how we all learn. Winning isn't everything. Sometimes the prize is learning to work together successfully.

Encourage "out of the box" thinking throughout the year. Brainstorming is a wonderful tool to get adult and students' brains creating and working overtime. Be sure to set down rules before you begin and document each idea in the process. To brainstorm effectively, capture all ideas on paper or whiteboard first and allow in-depth discussion later.

Encourage mutual respect. Allow people to disagree, but not judge the individual or let things get personal. It's important that everyone feels safe enough to throw out an idea no matter how unusual, so try to work toward comfort and confidence. Balance the session to include and encourage quiet team members to contribute while keeping others from monopolizing the time. Invite everyone to build on already suggested items, but avoid revisiting topics unless all team members agree to do so.

Every team member should understand and embrace feelings of pride, happiness, honor, joy, pleasure, satisfaction, admiration, and self-confidence. Every person on your team should experience confidence when they work on and complete a job. Go easy on the criticism and lavish honest praise for jobs well done.

When your team is working long hours and deadlines are approaching, keep the team's keel as even as possible. One way to do this is to make sure you provide deserved kudos, even when things aren't going

as planned. Take a little time to celebrate the accomplishments thus far. List things the team has learned and acknowledge improved work habits to inject a positive, accomplished attitude.

Set up record keeping methods

Think ahead. Where's a good place to keep the team documents and data? You may decide to use portable file boxes for some items and 3-ring binders for others. Make copies of important documents in case they get damaged or lost, and set up an organized way of maintaining at least the following:

- Expenditures
- Team contact and emergency information and medical emergency forms
- Team Roster and Consent and Release forms
- Sponsor recruiting efforts and related correspondence
- Design ideas and test data
- E-mail Blasts and Team Updates

Clear records will assist you in future planning, make grant and award application writing easier, and help track your progress. Take lots of pictures and make videos of your team and robot during build season, competition and at any outreach or fundraising event you attend.

As students graduate, make a note of where they go to school next and keep in touch. Sponsors like tangible evidence that the FRC program is inspiring students, and *FIRST* appreciates the information to present to our sponsors as well.

November/December

Plan for build season

Once you have a team of mentors in place and you have recruited and selected student members, it's time to bring everyone together. Meeting before the rush and crush of build season will allow members to get to know one another, plan and build trust.

Create a team calendar showing special events and important deadlines. Don't forget to include school testing dates and local events that might affect your members' availability. Then involve the entire team in drafting a timeline and scheduling meetings/work sessions to meet those deadlines. Planning for the build season with the entire team will ensure everyone understands the schedule and their role in the team's progress. Some teams utilize project management software for this purpose, but many teams get by with calendar pages and check lists.

Help the team establish reasonable goals. Start small so there's a feeling of accomplishment. If your team can create a working robot and compete at one event in their first year, you've done a lot. Foster innovative thinking and focus on learning, improving, and inventing, rather than winning. Get the kids interested in earning scholarships through the program, and set down safety rules for working, traveling, and event participation.

Develop a notification process so you can keep everyone updated. How will you alert members to a sudden schedule change due to bad weather? Do you have the ability to hold extra work sessions if the team falls behind schedule? Build in opportunities for regular updates from subcommittees and project teams so everyone understands the team's progress.

Plan for set up and clean up time when developing a standard meeting schedule. Include breaks for tension relief and understand teenagers work best when they can refuel regularly. It's a good idea to get a group of parent volunteers to arrange regular snacks. Teams that hold day long meetings on weekends often schedule one or more meals into the day.

Manage your team day to day

Define tasks

Describe each task to the sub-team assigned and be sure to ask if there is anyone who does not understand. You will save time, materials, and money if you make sure everyone understands the task at hand. If the assignment is complex, facilitate with instruction.

Monitor Progress and Ask Questions

Have a time for discussion at the beginning of each meeting. Ask if anyone needs help. This fosters kindness, thoughtfulness, and cooperation - real team builders.

Check with the various team members or sub teams to make sure everyone is focused on the purpose, knows the deadline and is progressing. Again, ask if anyone has questions or concerns. If someone seems stumped, ask questions to guide the sub team toward an easier, quicker, or more efficient way to do the job. If someone produces a part incorrectly, ask simple questions such as "Did you measure twice?" or "Did you look at the drawing?" to lead the student to a solution for the error. This method teaches more than just doing it for the student or just telling the student what s/he did wrong.

It is OK to give suggestions if you see a sub team is veering off course. Remember, this project may be the first time some of these youngsters have used tools or been assigned an important task. Just try not to take over the project.

Manage Punch Lists

Each sub team should learn to maintain a "to-do" list of items requiring immediate or scheduled attention. Include deadline dates and the persons assigned to each task and a column for notes so the team can pencil in progress or problems and initial their notations. Highlight completed jobs to indicate progress and provide incentive. Label each list with the sub team's name and post lists together in a convenient spot so everyone can get a feel for critical items that may impact their particular task or area of expertise.

Follow the Task Timeline

Refer to the Appendix for a generic timeline of the design and build season and beyond. This graph should help your team map out its own season and form sub teams with the correct overlap.

Value Each Mentor, Team Member, and Volunteer

It is extremely important that each person feels valued and respected. Encourage everyone to check egos at the door and consider other's feelings at all times. A good place for this concept to begin is at the first few meetings during the brainstorming process, when any idea should be considered valuable. Establish the rule of "No disparaging remarks allowed!"

Adult and Student Decorum

Early on, conduct a mentor/student propriety discussion with the adults. Kids should be comfortable in this atmosphere, so be sure that mentor language, behavior, dress, and jokes are proper at all times.

Young people look up to those they trust and respect, and they closely watch the adults' actions and will see those actions, bad or good, as appropriate. Make sure team members know they can come to you with complaints or concerns.

Hold trainings

The meetings prior to kickoff are an excellent time to prepare students and mentors for the challenges ahead. Arrange for guest speakers in topics related to robot design and build: programming, cad design, machining, wiring, the list is endless. Ask your mentors and sponsors to train students in their particular areas of expertise. You can also find training outlines developed by other teams on websites listed at usfirst.org.

Does your team need a Website?

Many FRC teams have a team website to promote the team, their sponsors and *FIRST*. A team website provides a vehicle for connecting with others and a place for team members to communicate with one another. A little on line research will turn up a lot of FRC team websites. If you have a mentor or team member who is enthusiastic about website design, go for it. The benefits of connecting to your local community and the *FIRST* community at large are enormous. Many teams enter their websites to be judged for the Website Award. Details on the website award are available on usfirst.org

Cad & animation

Traditionally Autodesk provides FRC teams with a copy of Inventor to enable teams to design a robot before ever lifting a tool. If you can find someone familiar with the program to train your team, you will save a lot of time and consumable supplies.

Rookie awards

Rookie All Star Award

This award celebrates the rookie team best exemplifying a young, but strong partnership effort, while implementing the mission of *FIRST* to inspire students to learn more about science and technology. Rookie teams may opt to submit for this award in STIMS, however, submission is purely optional and teams that don't submit will still be considered at competition.

Rookie Inspiration Award

This award celebrates a rookie team's outstanding success in advancing respect and appreciation for engineering and engineers in their school and community. Teams are judged for this award at competition.

Highest Rookie Seed

This award is a performance award and celebrates the highest-seeded rookie team at the conclusion of qualifying rounds.

Team identity

Official Name:

This team name is generated automatically when you enter school/sponsor/partner information into TIMS and is the name we print in *FIRST* documentation. Please be sure to list your sponsors and school(s) in TIMS by the first of December so your official name can be included in the Program Books.

Scoreboard "Short Name":
This name can be no longer than 21 characters and should include partners and school. As you can imagine, sponsors love seeing their names up in lights!

Nickname:
The team comes up with this name. Many teams use their school's mascot as part of their name such as, TigerBots, Robo Lions, or Metal Knights, and others come up with something uniquely important to the team. The deadline for TIMS nickname input is usually mid-February.

Logo
Once you choose your team's nickname, you may want to come up with a team logo to incorporate with your image. Keep your logo simple because each color you use costs more to print. For information about using the *FIRST* logo visit usfirst.org for logo restrictions.

Stylin'
A big part of the team fun is individualizing your appearance. Of course it's optional. Some teams have matching T-shirts, while some wear complete, matching outfits, with stylized or dyed hair. Many teams decorate their pit space to match the theme, and some even decorate their robot and robot cart.

Mascots
You will see animated hand tools, caped wizards with pointy hats, cartoon characters, cheerleaders, and just about every furry animal at competition events. Please keep safety in mind if you choose to design a team mascot and consider things like clear vision and temperature when constructing your mascot.

January

Kickoff

Kickoff unveils the game and marks the beginning of the design and build season. Kickoff is broadcast from Manchester, NH and made available to teams worldwide thanks to the generosity of NASA. Check usfirst.org for a local kickoff hosted by a team or committee near you. It's a great opportunity to get together with other teams, compare notes, get ideas, make connections and get geared up for the exciting year ahead. Some local kickoff events also include workshops which you won't want to miss.

In the past, teams attending official "local" kickoffs have been able to pick up their Kits of Parts (KoP) at the event at no additional charge. An adult team member must be present to sign for the KoP upon receipt.

Teams that cannot, or do not wish to pick up their KoP at a local kickoff may pay for shipping and arrange to have their KoP delivered to "my site". (You will be asked to provide an account number for UPS or FedEx if you choose this option.) Your KoP will arrive during the week following Kickoff.

The KoP traditionally consists of two large totes and additional cardboard boxes. It is heavy and will fill most car trunks. The KoP is expensive to ship and cannot be brought on a commercial airline, so you should make every effort to attend a nearby Kickoff.

Be sure to register for a Kickoff in TIMS by the deadline. Teams may split up and attend more than one Kickoff location if they wish, but must chose only one location to pick up their KoP.

Everyone who attends a kickoff event is required to complete a Consent and Release form. See the Consent and Release forms section of this manual.

Upon receipt of your KoP, you must inventory the contents and report any shortage by the deadline. See the Kit of Parts section of this manual.

At the conclusion of Kickoff, your team should meet as soon as possible to discuss the game objectives and scoring. Many teams schedule a design meeting for the afternoon of Kickoff.

Consent and Release forms

Everyone attending FRC events (Kickoff, Competition, etc.) must complete a Consent and Release form. Attendees under 18 years old need a parent or guardian's signature. The form is available on the usfirst.org website. It is a good idea to have everyone on your team complete a Consent and Release form prior to leaving for an event as this will save time at event registration.

FRC team members can submit an electronic Consent and Release Form via either the Team Information Management System (TIMS) or the Student Team Information Member System (STIMS). Team members still have the option to submit a hard copy form by downloading it from our website and submitting one (1) copy for Kickoff attended, and one (1) at the initial competition event.

Kit of Parts

Every registered FRC team receives a Kit of Parts (KoP) for use in building a robot for competition. KoPs generally contain items ranging from batteries and motors, to control boards and pneumatic devices. The KoP is designed to help any rookie team get a functional drive base running within a few days. Conversely, the kit also includes advanced sensor technology which may be appreciated by more experienced and expert teams. The contents of the KoP vary from year to year, and much of it is donated by generous organizations. Some of the items in the KoP are required on all competition robots. Teams may use some additional items, not included in the KoP as outlined in the Game Manual

The KoP is distributed to teams at Kickoff or sent to teams at their cost. See the Kickoff section of this manual. After Kickoff, a list of the items contained in the KoP is posted on line and you should compare your kit items to the pictures and the list. Teams have just a few days to inventory their parts and report any shortage, via TIMS, before the deadline which is usually the Wednesday night following the Kickoff.

Spare Parts

It is a good idea to have spare parts on hand so they are available during the build season. An experienced team can help you decide what parts you are most likely to need. Become familiar with the replacement parts policy of KoP items. During the season, check the "At the Events" section of the Game Manual for the short list of replacement kit parts that may be available during competition events.

Game Manual

The Game Design Committee publishes a new Game Manual every year. This document contains everything your team needs to know to build a legal robot, transport your robot to competition events, compete in the game and apply for awards. Teams must read every section of this manual in order to succeed. Teams may download an encrypted copy of the Game Manual prior to Kickoff. The encryption key is released during the Kickoff broadcast.

Questions about information found in the Game Manual may be posted by teams on the FRC forum. See the Forums section of this manual. Updates to the Game Manual are released during build season and posted to usfirst.org.

Build Season

Once the game is revealed at the Kickoff, have everyone read the game description in the Game Manual several times and hold a meeting as soon as possible to discuss the game objectives and scoring. Some teams begin discussing the game immediately following the Kickoff broadcast.

Once your team has some reasonable strategies for robot design and function, get your sub teams going programming the autonomous mode; designing the devices necessary to manipulate game pieces; and building the frame and drive train. It is a good idea to have sub teams work simultaneously. There isn't enough time in six (6) weeks for everyone to participate in every step in the process.

Your Team Main Contact will receive emails from *FIRST* throughout the build season. This person MUST be prepared to read each and every email in a timely manner and forward them to team members. Team Email Blasts contain vital information on competition details and other topics specific to FRC. Email Blasts are archived on the usfirst.org website where any team member may access them.

Assign someone to constantly monitor the FRC Forum and Team Updates on usfirst.org for game updates or clarifications. This person MUST be prepared to check the sites frequently and share their findings with the rest of the team.

It is a good idea to download the Robot Inspection Checklist on usfirst.org and refer to it frequently during build. This will save a lot of time and trouble during Robot Inspection at events.

Forums

FRC maintains a Question and Answer (Q&A) forum where teams may post questions about information found in the Game Manual for clarification by the Game Design Committee.

Each team is assigned a unique username and password to access the FRC Q&A forum. Ask your Team Main Contact for this information and assign ONE (1) member to act as spokesperson for your team. Anyone may view the Q&A forum, but only the person with the username and password may post.

If your team posts a question, please be sure to refer to the Game Manual section needing clarification in your post. Watch for the official answer in a day or two. It is possible that your question, while unique to you, will already have an answer posted for a previously asked question. This method helps ensure all questions relating to the same concept will be answered the same way, rather than re-phrased multiple times. Remember, the *FIRST* Web site is the only place to find official answers.

Email Blasts

Team contacts will receive many e-mail communications during the year. The Main and Alternate Contacts must check for emails often during the registration and competition season and every day during the build season. Only the Team Main and Alternate Contact will receive Email Blasts. Email Blasts are archived on the usfirst.org website where any team member may access them.

Team Updates

During the season, Team Updates will be posted on usfirst.org. Teams should assign someone to check this site regularly (updates are generally posted twice a week). It is vital to review the Team Updates as they contain corrections and additions to the information contained in the Game Manual. Many teams print out the Team Updates and file them with their copy of the Game Manual so they can refer to them easily and quickly.

Run parallel activities to prepare for competition

While your build team and programming team are constructing a working robot, other team members can be preparing for the season.

Form a robot drive team and make sure they are ready to compete. Most teams use two joysticks to run their robot, so the student operators must be able to communicate with each other using a minimum of words. The field coach can be a student or adult but cannot score for the team. This person relays referee information, assists the team in predetermined strategies, or calls strategy changes when necessary. She/he must be calm under pressure and shouldn't talk with his/her hands.

Recruit a scouting team and have them develop a method to track other participating teams' strengths and weaknesses. This is especially useful for knowing opponent capabilities and choosing complementary alliance partners when your team makes it into the final rounds.

Have members design your robot pit space. What tools will you need for robot repairs during competition? How will you transport equipment? How can you lay out your pit space for maximum efficiency? Do you want to incorporate your team colors or logo?

Build your shipping crate and robot cart.

Safety

Safety is paramount to the FRC program. Train your team about safety in the workplace and at the events. Establish and discuss procedures for reporting an accident or safety violation to the mentors. Provide hands-on training for power tool operation and include instruction on any associated safeguards and their functions. Consider investing in having one or more Mentors certified in First Aid.

A Team Safety Manual from UL is available on usfirst.org. Familiarize the mentors and team members with the Safety Awareness and Recognition program and get them excited about earning the safety award at events.

At each team's initial competition event of the season and at the Championship, there will be a Safety Captain badge in the registration packet. The Safety Captain would be in charge of identifying safety hazards and implementing corrections with the coaches' help. Consider having more than one captain and having them alternate being "on watch."

Safety Concerns when participating in FRC

- Non-shaded safety glasses that meet ANSI Z87 standards are Mandatory for all people wishing to enter the pit area (assume that's everyone on your team and everyone who plans to come watch your team compete).
- Open-toed shoes are not allowed at events

- Stored energy hazards - electrical, mechanical, and pneumatic: Springs, chains, and gears; batteries; pneumatic cylinders and lines, extended "arms," bound joints, and lifted weights.
- Hazards of the autonomous mode
- Harmful dust/fumes and protective masks or respirators
- Chemicals and exposure
- Electrical hazards
- Welding and brazing - appropriate eye and hand protection
- Pinching and crushing
- Slip, trip and fall prevention
- Protective equipment
- Loose clothing, long hair or jewelry vs. moving parts
- Proper lifting technique

February

Robot Ship Day

On Robot Ship Day, teams must stop work on their robot. Teams either seal their robot into an isolation bag, or ship it via FedEx (as described in the Game Manual) depending on the location of their first competition. It is a good idea to download the Robot Inspection Checklist prior to Robot Ship Day and to use the checklist to go over your robot one last time before sealing it into an isolation bag or shipping it via FedEx.

Scholarships

Millions of dollars worth of scholarship offerings are available to students participating in the FRC program! It is important students know about these opportunities and take advantage of them. Designate someone at school or on the team to review the usfirst.org site and share scholarship requirements and deadlines with the team members and their parents. Most scholarships go to students pursuing a scientific or technical degree, but there are some for more general studies as well. Don't let this opportunity slip by!

The Competition Season

Teams sign up for Competition Events when they register in TIMS in the Fall. Teams travel to District or Regional competition events to compete in the game and be judged for awards in design, creativity, innovation and culture changing behavior. Sample agendas for FRC competition events are included in the Game Manual along with specific competition rules.

When you arrive at a competition, go directly to Pit Administration, hand over your team's Roster and Consent and Release forms and sign in. You will be given a schedule and a map. The map shows team pits, the practice field, the robot inspection station, the queue line to the playing fields and the travel path for return to the Pit.

Pit Administration

The Pit Administration Station is the registration area and hub for information. If you need help or have a question, that's where to go. All events have someone with medical training available in the event of illness or injury.

The Pit
The pit is where teams store and work on their robots. If you arranged to ship your robot via FedEx your crate will be waiting in your pit space when you arrive. If you transported your robot to the event, you must find the official in charge of checking the isolation bag before you unpack your robot. Set up your tools and supplies, uncrate your robot and program your radio with the WPA key assigned to your team for this event.

The Practice field
Competition Events generally have practice fields with representative game pieces and game elements. You may receive a practice field schedule, or teams may be able to sign up on a first come, first served basis. The practice field is the perfect place to make sure your robot is running as planned before you compete.

Robot Inspection
Every robot must be inspected before it can compete. Inspection criteria are available on line at usfirst.org . It is a good idea to download the Robot Inspection Checklist during the build season to prepare your robot for inspection. At the event, allow yourself plenty of time to make it through robot inspection before your first scheduled match. Robots that do not pass inspection are allowed to return to their pit space to make repairs or changes until the robot does pass inspection.

The Playing Field
Games, field setups, rules, and goals are different from year to year; however, the actual matches are usually about 2 ½ minutes long. Teams queue up for matches and talk strategy with their alliance partners while they wait. If a team does not arrive at the playing field in time for their scheduled match, the match is run without them.

The human players must wear ANSI Z87-approved safety glasses and their team specific drive team badges provided at registration. Players carry their robot onto the field and switch on the power to their robot when directed to do so by the queuers. Players set up their robot controls in the protected driver station at the same time. LEDs show the competitors' team numbers above each station.

Teams play on competing alliances. Alliances change from match to match.

The Drive Team
Generally, four people from each team are permitted in the queue line and on the playing field. The person acting as the "on-the-field" coach can be a student or an adult, but he or she is not allowed to score. Typically, the game specifies each team must also have two robot operators and a human player. They score for the team and must be of pre-college age/status.

Judges
These volunteers watch the competitions and talk with teams to evaluate performance, sportsmanship, attention to safety, and knowledge about robot construction and operation. Judges confer and decide which teams have earned awards then present trophies to the winners during the Awards Ceremonies.

Team Spokespersons
Consider having a few students groomed and ready to lead the group when talking with Judges or pit guests. These team representatives should be familiar with and be able to speak about the team and its

members, the robot and its processes, problems the team encountered, and the team's solution to those problems. They must also be able to speak above loud pit noises.

Scouting

Teams that qualify for finals choose their alliance partners during alliance pairing. Many teams prepare for this moment by scouting other teams during qualification matches.

Awards

FIRST recognizes FRC teams for excellence in design, creativity, innovation, culture changing behavior and competition performance. Judges at each competition event interview teams and watch team behavior, both on and off the competition field, as they evaluate everyone for awards.

There are a few awards that require teams to submit entries prior competition. These include the Chairman's Award, *FIRST's* highest award for culture changing behavior; the Woodie Flowers Award that honors hardworking mentors; the Website award; and a pre-season Safety Animation contest.

April

Championship

Championship is the culmination of the FRC competition season and includes JrFLL, FLL and FTC competitions/demonstrations. FRC teams compete in one of four divisions, vying to earn a slot in the finals held on Einstein field.

In order to register for the Championship, teams must meet the current eligibility criteria and compete in at least one competition event during the competition season. The majority of teams earn a berth at Championship by winning certain awards at a competition event. Rookie teams may earn their way to the Championship by winning the Rookie All-Star or one of the other specified awards.

Celebrate

Even if your team doesn't earn a berth at Championship, you should celebrate your team's success. Look back on how much everyone has accomplished and make sure to acknowledge everyone's individual contribution to the team. Remind members and mentors of the great ideas they had, the problems they solved, the way they supported teammates, the skills they mastered during the season, and the growth you have seen. This positive reinforcement is a great way to encourage students and mentors to return for another competition.

Ask your school to hold a special assembly or ask your sponsoring organization to hold a team social. Display the team's safety program documentation, demonstrate the robot, and showcase team mementos, journals, photos, and awards submissions.

This might be a good time to present the participation pins you received at your initial event. Some teams create certificates for each team member with special recognition of the contribution each person made during the season. Be creative when awarding them, and use the *FIRST* logo available on usfirst.org. Be sure each student on your team receives one.

Applaud Your Sponsors, Mentors, and Volunteers

Invite your sponsors to your celebration. The team can present sponsor representatives, mentors and other volunteers with a framed team or robot photograph, a certificate, or a letter recognizing the special talents she/he shared. This personal recognition will encourage involvement in next season. Giving a gift with the *FIRST* logo is a great way to honor supporters. Visit the *FIRST* on-line store for ideas.

Events run by teams

Some teams run Invitational events during the off season. Check usfirst.org for a list of upcoming events. If you decide to run an off season of your own, details on borrowing competition fields are available on usfirst.org. It is a good idea to attend a number of off season events before committing to host one of your own. There is a lot involved.

Team demonstrations

Many teams hold demonstrations for the public during the off season. This is a great opportunity for your students to spread the word about FRC and to recruit new members or sponsors. Check with local schools, malls, and special events to see if your team can give a presentation.

Other items of interest

Gracious Professionalism

A large part of the success of many teams and *FIRST* itself is the somewhat unique emphasis and approach to teamwork. Dr. Woodie Flowers, *FIRST* National Advisor, shares his view regarding Gracious Professionalism below.

"Obviously it would not make sense to endorse 'asinine professionalism' or 'gracious incompetence.' It is, however, completely consistent with the *FIRST* spirit to encourage doing high quality, well informed work in a manner that leaves everyone feeling valued. Gracious professionalism seems to be a good descriptor for part of the ethos of *FIRST*. It is part of what makes *FIRST* different and wonderful.

"Gracious professionalism has purposefully been left somewhat undefined because it can and should mean different things to each of us. We can, however, outline some of its possible meanings. Gracious attitudes and behaviors are win-win. Gracious folks respect others and let that respect show in their actions. Professionals possess special knowledge and are trusted by society to use that knowledge responsibly. Thus, gracious professionals make a valued contribution in a manner pleasing to others and to themselves.

"In *FIRST*, one of the most straightforward interpretations of gracious professionalism is that we learn and compete like crazy, but treat one another with respect and kindness in the process. We try to avoid leaving anyone feeling like they are losers. No chest thumping barbarian tough talk, but no sticky sweet platitudes either. Knowledge, pride and empathy comfortably blended.

"Understanding that gracious professionalism works is not rocket science. It is, however, missing in too many activities. At *FIRST*, it is alive and well. Please help us take care of it.

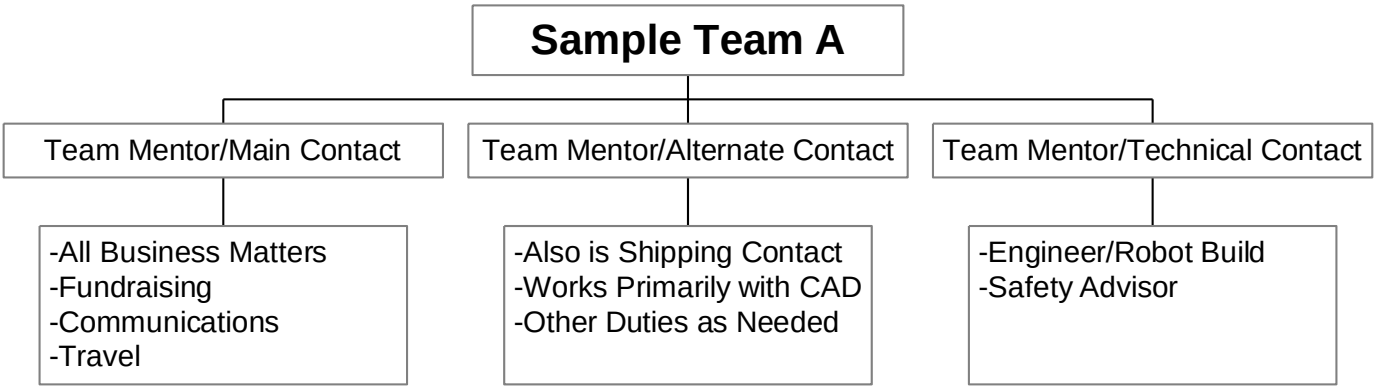
“In the long run, gracious professionalism is part of pursuing a meaningful life. If one becomes a professional, and uses knowledge in a gracious manner, everyone wins. One can add to society and enjoy the satisfaction of knowing that he or she has acted with integrity and sensitivity. That’s good stuff!"

Help us help you

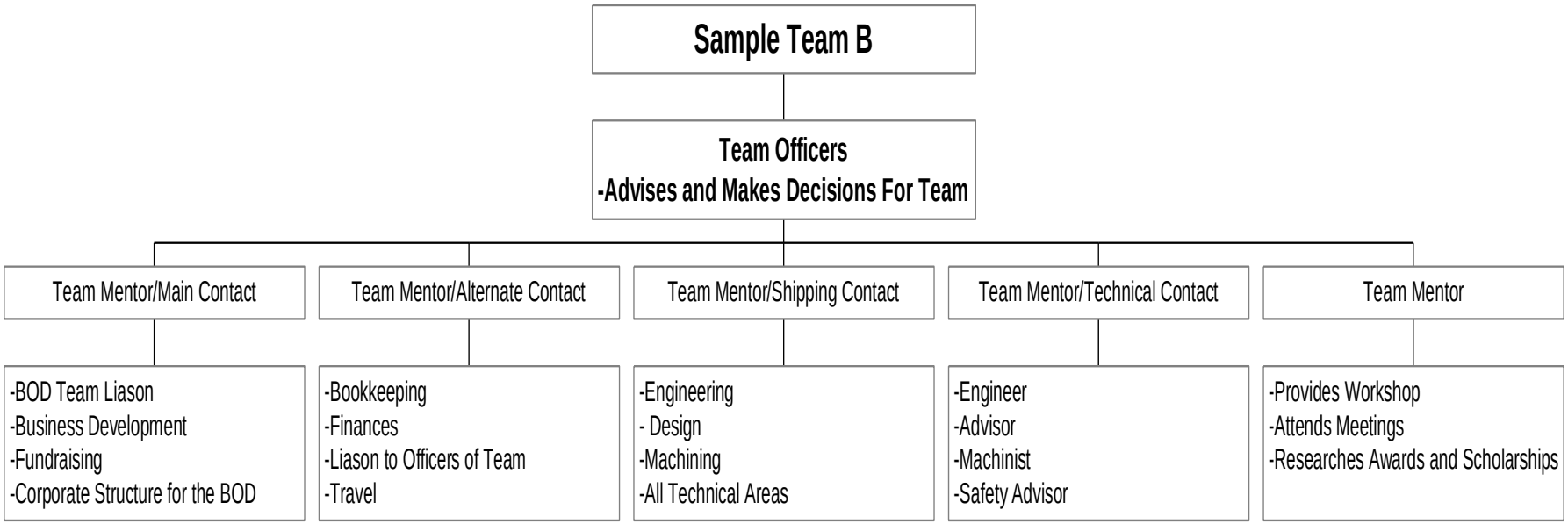
Please let us know what you think of this guide. Submit comments and suggestions for improvement to frcteams@usfirst.org or fax 603.666.3907

Appendix

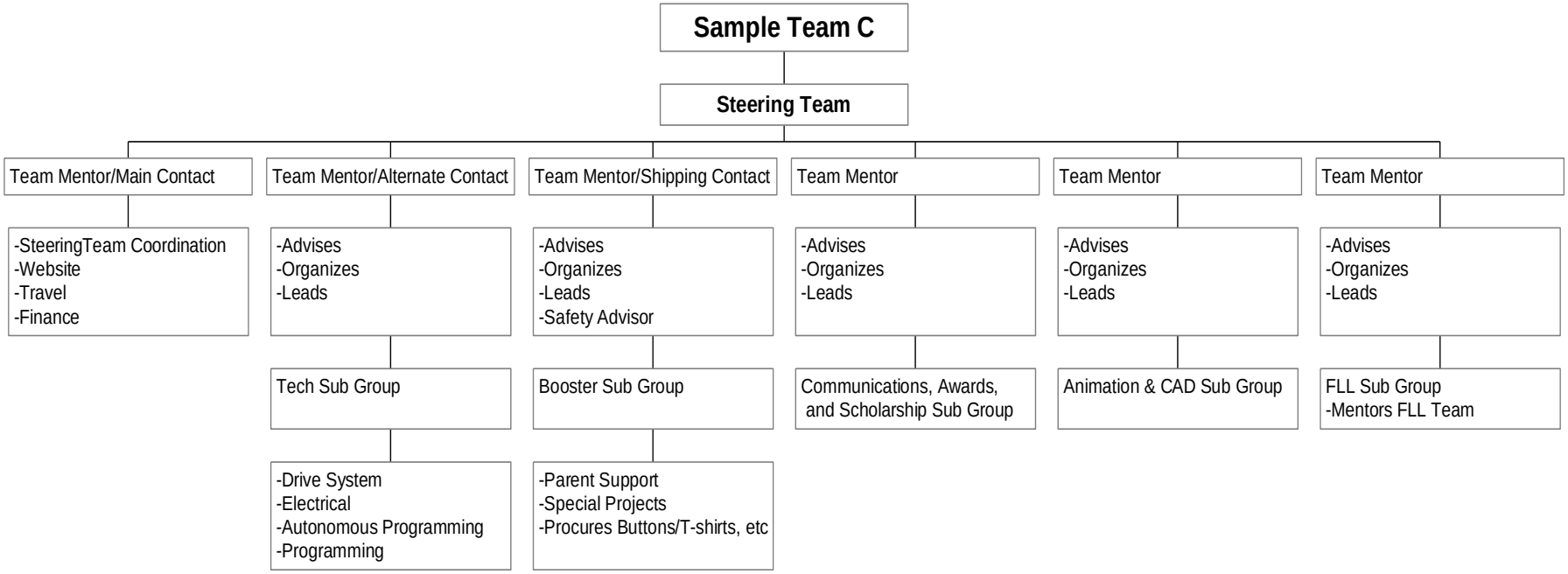
Organization - Sample Team A



Organization - Sample Team B



Organization - Sample Team C



Sample Budget: Teams attending one Local Regional Event

Cost	Items
$6500	Registration for a regional competition, includes Kit of Parts and *FIRST* team support
2500	Additional parts, tools and shop materials
300	Practice field components:
100	Robot cart (could be flat dolly constructed from leftover wood)
1000	Travel costs: bus transport to Regional for 3 days
300	T-shirts, trinkets & marketing materials
500	Post-season events. Set aside money for participation. Besides being fun, they provide more experience for your team and possible press coverage.
Total: $11,200	

Budget Note:
This budget does not include any designation for food at meetings or events, nor is there an allocation for hotel stays.

Sample Budget: Teams attending Two Regional Events

Two Competitions	Cost	Notes:
Local Regional ($8,600)		
First event registration	**6,500**	
Food	2,100	14 team members - $50/person/day
Second Regional ($12,050)		
Second event registration	**4,000**	
Travel	3,850	14 team members at $275 each
Lodging	2,100	7 rooms, 3 nights - $100/room/night
Food	2,100	14 team members - $50/person/day
Materials ($1,200)		
Electronics	600	
Speed controllers	350	
Sensors	200	
Controls	50	Operator interface controls and connections
Construction ($1,740)		
Metal, etc.	250	
Sprockets, chains, bearings, etc.	500	
Wheels	140	
Polycarbonate	50	
Hardware	250	
Signs	50	
practice field components	300	
Shipping crate	200	
Miscellaneous ($1,400)		
Tools	300	
Robot Cart	100	
T-shirts, trinkets & marketing materials	500	
Off-season event	500	
TOTAL EXPENSES	**$24,990**	

Important Team Finance/Budget Notes:

This budget has not allocated for food during meetings or practices.

Sample Robot Build/Competition Schedule

Various sub teams: Monday through Friday 5pm to 9pm – Weekends 9am to 3pm	
Kickoff Weekend:	
Kickoff Meeting – Game and rules announced - Saturday	
Team game and rules review - Saturday or Sunday	
Team meeting to plan game strategy / form sub teams - Sunday	
Week One: Formulate Design Ideas	
Sub teams develop design ideas	
Complete design ideas - Determine the ***"what to do"*** before the ***"how to do"*** aspects of the robot	
Team meeting for sub teams to present design ideas	
Week Two: Design / Integrate Systems and Components	
Order Parts	
Sub teams - Design systems and components	
Complete system designs, component drawings, and parts list	
Week Three: Fabricate / Procure Components	
Fabricate components	
Complete component fabrication and procurement	
Week Four: Assemble Robot and Shipping Crate	
Sub teams assemble robot	
Complete robot	
Build / check robot crate for sturdiness	
Week Five: Develop and Test Robot	
Test, refine, and develop robot	
Complete testing and development	
Start the Drive Team practice process	
Week Six: Game Practice and Revisions	
Drive team practices and team makes final robot play/strategy revisions	
Prepare robot for shipment	
Week Seven:	
Ship Robot by Deadline	
Team meeting for review of:	
Robot design	
Competition sub teams' rules knowledge	
Competition needs	
Collect completed Consent & Release Forms for registration at initial competition	
Safety – Ensure enough ANSI Z87-approved safety glasses for team at competition Consider Travel safety, venue safety, buddy system, etc. Collect contact information	
Regional Competition:	
1st Day	Registration, pit setup, practice rounds, robot inspection, shipping documents
2nd Day	Opening Ceremony, Qualifying rounds, Awards Ceremony, Team Social if applicable.
3rd Day	Qualifying and final rounds. Ship robot home or to next event, Awards Ceremony.
Championship:	
Wed. Eve.	Five-person team to register, uncrate robot, load WPA key, get inspected.
Thursday	Driver's Meeting, Practice matches, Qualification matches
Friday	Qualification matches
Saturday	Qualification, Elimination and Final matches, ship robot home, Awards Ceremony

Team Checklist: Pre-Season Through Event Preparation

Starting a new team takes a lot of organization. The following is a suggested pre-season through design and build phase "to do" list for new and returning teams.

Before the Season Starts

- ☐ Consider linking up with a veteran team for pre-season activities
- ☐ Recruit your team: mentors, students and parents.
- ☐ Find a meeting place and meet with site host.
- ☐ Determine how the team will cover its costs.
- ☐ Find sponsorship.
- ☐ Set up a practice area.

Your Team and Organization

- ☐ Make your initial meeting a friendly meet and greet.
- ☐ Review FRC values and gracious professionalism.
- ☐ Learn as much as you can about FRC by familiarizing the team with usfirst.org web site.
- ☐ Decide how to organize your team.
- ☐ Create a meeting schedule.
- ☐ Create a team credo/contract.
- ☐ Host an Open House.

Success Tips for Learning and Mentoring

- ☐ Read the" ASME Guide to Starting a *FIRST* Team."
- ☐ Read the "*FIRST* Mentoring Guide."
- ☐ Check out the workshop resources on the *FIRST* Web site (usfirst.org).
- ☐ Use team meeting time for training sessions.
- ☐ Run team-building exercises.
- ☐ Learn and teach the basics of pneumatics, electrical, programming, mechanics, etc.
- ☐ Create a safety plan and monitor the program.

Team Logistics and Preparation

- ☐ Practice brainstorming
- ☐ Purchase supplies, tools, and 3-ring binders. Have someone maintain binders for *FIRST* documents, research, design ideas, and test data.
- ☐ Print out last year's Manual sections to familiarize the team with the season.
- ☐ Go to an off-season event with your school principal, potential sponsors, and team members.
- ☐ Send a note to parents requesting team members' emergency and medical information.
- ☐ Schedule trainings by technical mentors or specialists if possible.
- ☐ Schedule weekly preparation times.
- ☐ Research travel options and hotel rates.
- ☐ Choose and register for your event(s) by the deadline(s).
- ☐ Build a practice robot.
- ☐ Install software on computer(s), adhering to the site license requirements.
- ☐ Design a team logo and work on your team T-shirt and/or trading buttons

Pre-Kickoff Preparations

- ☐ Research the Kickoff location options through TIMS.
  - Are there workshops?
  - What else is offered?
- ☐ Choose a Kickoff(s) to attend and designate your choice by the deadline. Many kickoffs have maximum numbers and may fill up quickly.
- ☐ Choose and designate the method of receiving your KOP by the deadline.
- ☐ Make travel arrangements to Kickoff.
- ☐ Build the robot crate.

Kickoff – Game is Revealed

- ☐ Download the Manual sections.
- ☐ Inventory your KOP and report any inconsistencies through TIMS by the deadline.
- ☐ Learn the game and immediately begin game brainstorming.

Competition/Event Preparation

- ☐ Develop a competition strategy.
- ☐ Distribute and collect the *Consent and Release Forms* for each traveling team member.
- ☐ Begin work within your sub teams and prototype the robot.
- ☐ Test the robot.
- ☐ Re-design the robot as necessary.
- ☐ Designate pre-college team members as the drive team.
- ☐ Pre-inspect your robot, using the sample inspection sheet on the web site.

Robot Shipment

- ☐ Check to see if your first event is Bag & Tag or 'traditional'
- ☐ In January, the Shipping Contact and a back-up person must familiarize themselves with the *Robot Transportation* section of the Manual.
- ☐ Ship or lock up your robot by the deadline.

Event Travel

- ☐ Review your Team's Credo and the Gracious Professionalism tenets.
- ☐ Bring the Roster and "Consent and Release" forms to your initial Regional event. They are required for Registration. The forms are also required at Kickoff events.
- ☐ Review travel/ event safety procedures. Use the buddy system.
- ☐ Provide the team and parents with contact and hotel information.
- ☐ Bring ANSI Z87-approved safety glasses for each team member and all team guests. Bring extras.
- ☐ Remind everyone that they must wear sturdy closed toe shoes - no Crocs, sandals, flip flops, sling backs, etc.