



# STARTING AN FRC TEAM

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## ABOUT *FIRST*

“...to create a world where science and technology are celebrated... where young people dream of becoming science and technology heroes.” Dean Kamen, Founder, *FIRST*

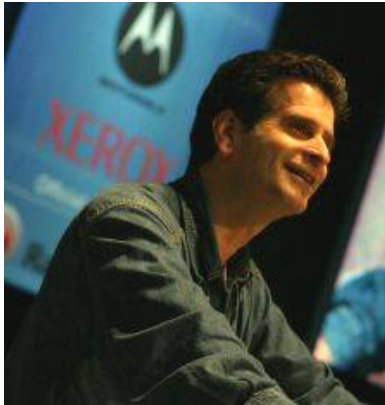
*FIRST* (For Inspiration and Recognition of Science and Technology) was founded by inventor Dean Kamen to inspire young people’s interest and participation in science and technology. Based in Manchester, N.H., *FIRST* is a 501 (c) (3) not-for-profit, public charity.

*FIRST* is a volunteer-driven organization built on partnerships with individuals as well as businesses, educational institutions, and government. Some of the world’s most respected companies provide funding, mentorship time and talent, and equipment to make *FIRST*’s mission a reality. There are over 39,000 committed and effective volunteers who are key to introducing 70,000 youths to the joy of problem solving through engineering.

*FIRST* provides two well-known programs, the *FIRST* Robotics Competition (FRC) for high-school-aged young people and *FIRST* LEGO® League (FLL) for 9 to 14 year-olds. In addition, *FIRST* created two programs in recent years: Junior *FIRST* LEGO® League (JFLL), an extension of FLL for children six to nine year, and *FIRST* Tech Challenge (FTC), an intermediate robotics competition for high school students. Also located at *FIRST* headquarters is the research and development facility called *FIRST* Place.

Since 1992, FRC has challenged high school students, working with professional mentors to solve an engineering design problem in an intense and competitive way. The program is a life-changing, career-molding experience and It’s a lot of fun. 2007, the competition reached more than 29,000 students on 1,300 teams in 37 regional competitions and one Championship event. Our teams come from Brazil, Canada, Israel, Mexico, the Netherlands, the United Kingdom, and every U.S. state.

## WHO ARE DEAN AND WOODIE?



### ***Dean Kamen***

Founder, FIRST

“We want to change the culture by celebrating the mind. We need to show kids that it’s more fun to design and create a video game than it is to play one.”

Dean Kamen is President of DEKA Research & Development Corporation, a dynamic company focused on the development of revolutionary new technologies that span a diverse set of applications. As an inventor, physicist, and entrepreneur, Dean has dedicated his life to developing technologies that help people lead better lives. Dean’s proudest accomplishment is founding *FIRST*.

### ***Woodie Flowers***

***Co-Founder and National Advisor, FIRST***

“...It’s like life. You never have enough information. You never have enough time. The kit of materials may be what you have in the warehouse. There are always people doing competing things and you must have a strategy. We created a microcosm of the real engineering experience.”



Prior to his recent retirement, Dr. Woodie Flowers was the Pappalardo Professor of Mechanical Engineering at the Massachusetts Institute of Technology. He is a Distinguished Partner at Olin College and co-founder of *FIRST*’s cornerstone program, the *FIRST* Robotics Competition. Dr. Flowers participates in the design of the *FIRST* Robotics Competition game each year and has served as a National Advisor to the *FIRST* Robotics Competition since its inception.

## EXAMINE THE *FIRST* UNDERPINNING

***Help us, please.***

*It is crucial that we receive your feedback about this initial attempt at providing helpful information to our FRC teams prior to the Kickoff and start of the season. Please submit any comments as well as subjects you find missing or in need of augmentation or clarification.*

*We will make every effort to improve this guide. Please jot down notes as you read and e-mail them to us at [frcteams@usfirst.org](mailto:frcteams@usfirst.org) or fax them to 603 666 3907. In both cases, please use a subject heading of "FRC "Starting and FRC Team" Feedback."*

*FIRST* Robotics Competition (FRC) relies on volunteers and mentors for its life and breath. Our teams and their mentors are unparalleled. Brains and work ethic to the max! Each team has its core adults guiding and teaching the kids through timelines, team building, safety cautions, brainstorming, fundraising efforts, CAD instruction, award submissions, and T-shirt design, while teaching and nurturing gracious professionalism throughout. Oh yes, then there's the small matter of robot design, build, test, troubleshooting, and re-design. And did we mention honing work ethics to a "nose to the grindstone" frenzy and so many long days and late nights?

Why would someone want to volunteer to be a part of all of this you ask? Many say that it is good for young people and their communities. True, but whom are they kidding? It's an exciting, fun competition! *FRC* is sport for the mind and a serious challenge for team members and mentors. Is it an obsession for the sci-curio mentality, a mind-altering "drug" for potential inventors, or a brain food for future technological advancement champions? Affirmative.

Kids and mentors with other talents will also love the ride! Line up some graphics/Picasso-type artists, aspiring writers, accounting neophytes, marketing or salespeople, and others still searching for a niche. They will surely find or create one once they catch the team fever! The *FRC* program wants to provide students with a positive team experience and give them an opportunity to develop leadership.

## USE THE *FIRST* SUPPORT SYSTEM

With this guide, we hope to make it easier for rookie teams to get a good, stable start with preparing and organizing, recruitment, mentoring, and teamwork. The "*FRC* Handbook" provides additional information about the workings of a team.

### Team Support

Got questions? We have help. Call *FIRST* Team Support, located at *FIRST* Headquarters in Manchester, NH, during regular business hours, 8:30 a.m. to 5:00 p.m. Eastern Time.

<b>E-mail</b>	frcteams@usfirst.org
<b>Phone</b>	603 666 3906, press 0 800 871 8326, press 0
<b>Fax</b>	603 666 3907

## Field Support

Regional Directors and Senior Mentors cover specific territories and can help if you have questions for your locale or competition. Team Support can put you in touch or you can find a Regional Director in your area at <http://www.usfirst.org/contact.aspx?id=2878>

## **FIRST Web site - [www.usfirst.org](http://www.usfirst.org)**

Find out how *FIRST* Robotics competitions (FRC) works by touring the web site and become acquainted with available grants, scholarships, deadlines, and the various award submissions before the season starts.

## **BUILD A FOUNDATION**

A large part of the success of many teams and *FIRST* itself is the somewhat unique emphasis and approach to teamwork. The respect for peoples' ideas and methods is the foundation for all of our programs, and we encourage productive, overflowing invention, huge elements for scientific success. Enough said. Read the pro's insights in the following paragraphs.

## **Make “Gracious Professionalism” the Cornerstone**

Dr. Woodie Flowers, *FIRST* National Advisor, provides his view regarding the question, **“Why do *FIRST* folks talk so much about that phrase?”**

Quoting Dr. Flowers, “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!”

## **Open the Door to Success**

Hold an open house for all potential team members, parents, and mentors to describe the program. Remember, parents often make great potential sponsors and mentors! Prior to the meeting, download the FRC information sheets from the web and distribute them as handouts or post them to a board for all to see. Use the following link to find program information and statistics.

[http://www.usfirst.org/community/resourcecenter.aspx?id=952&menu\\_id=148](http://www.usfirst.org/community/resourcecenter.aspx?id=952&menu_id=148)

Invite a veteran team to speak and show off their robot. You will be amazed at the speaking competence, demonstration ability, and excitement the young people bring to the presentation. Invite potential sponsors. This pre-season meeting is also a great time to capture parents' attention and involvement by mentioning one of the huge rewards of FRC student participation – 8 million dollars in scholarship offerings.

## Recruit Mentors

You probably want to start a new team because you want to help young people get excited about science and technology, and you hope to have a good time in the process. Well, you and your team better get ready for lots of fun with this program! Try to choose team mentors with varied talents. Besides mentors for the robot design and build phase, you should recruit someone to get the word out to potential sponsors and the local media. Also, who would be good at booking travel and hotel arrangements? Spread the workload!

**Mentoring Opportunities** - Is there a need for teacher or student translators? Consider which folks can handle the logistical details of your various meetings and competitions, impart safety education, and encourage students to apply for the many scholarships.

If there is a college or university nearby that offers engineering courses? If so, try to include the students and faculty in partnering and mentoring. Many schools use the FRC program as their capstone project for seniors and will welcome the opportunity to work with teams.

**This program is a great way for engineers to get the wind back in their sails.** It's certainly not humdrum, and they will have the opportunity to design, create, and modify. They become excited with their craft all over again while collaborating with other bright minds and cultivating new ones!

**Team Contacts and Mentors** - Who is willing to receive e-mails, monitor the web site, and circulate the *FIRST* communications? Make sure you have committed adults willing to be your team contacts. You will need *at least* the following people to consistently monitor the calendar and various duties involved with running the team, but not necessarily work on the robot:

Main Contact

Alternate Contact

Shipping Contact

Involve all lead mentors in all major decisions. Above all, there should be a reciprocal respect of young people. The facilitators may have to mediate disagreements about robot design, team fundraising and funds distribution, choosing events, and handling discipline problems, etc. Mentors will have to facilitate the workings of the team, deal open-mindedly with personality clashes within the group, and will have the final say for the good of the whole. Interpersonal management skills are important to communicating well with sub-team leaders and *FIRST* staff.

**Student Leader** - Many teams decide to incorporate a student team leader into the structure, with duties including representing and encouraging peers, keeping an eye on the calendar deadlines, collaborating with adult leaders, and assuming defined responsibilities, such as safety captain.

**Diversity** - Mentor diversity encourages team member diversity, so try to include teachers and other volunteers with similar backgrounds/ethnicity as the students. Recruit women for both technical and non-technical positions. Ask around to see if anyone can suggest potential mentors. The school may have some great Tech Ed or Industrial Arts teachers willing to help or can provide referrals.

Promote all areas of the team because it's not just about building a robot. A great way to get non-technical students feeling comfortable is to have them initially work with non-technical mentors and projects. Many will jump on the techie wagon once it gets rolling. Just watch!

**Skills, Preferences, and Approaches** - When meeting with potential mentors, you will naturally talk with them to find out what skills they have and are willing to share. It's equally important to make sure the team's philosophy about who builds the robot is clear and agreed upon by the decision makers. If an engineer won't let anyone touch his "baby," he or she might not be a positive team addition. Perhaps the team contract would help prevent this.

We all learn by failure, and kids are no exception. Team management varies, but *FIRST* encourages the "hands on" method of learning. We believe that the more each student has this experience, the more confidence and knowledge she/he gains from the FRC program. Be sure you all discuss this and agree on this subject early and also make sure your mentors enjoy working alongside kids and have a good approach to learning and discipline. The "Resources" web site document, "*FIRST* Mentoring Guide," provides a good footing for developing the methods of mentoring and facilitating and provides information on productive brainstorming. Give each mentor a copy.

**Parents** - Don't forget this most valuable resource! Ask the students if any parent is an engineer or has any useful skills for the team, such as machining. Someone may be able to handle the robot shipment and deadline. You may also find parents with fundraising, programming, or marketing experience, or a group willing to provide snacks or donate food. Remember, parents make good chaperones when traveling to competitions.

**Sponsors/Partners** - If you are lucky enough to have potential sponsors, ask for a meeting to discuss the project with some of their technical people. Be sure to bring all potential sponsors some information sheets from the FRC Communications Resource Center located on the [www.usfirst.org](http://www.usfirst.org) web site. You may want to create your own. Call a 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 very best way to reel in recruits is to throw out the competition bait, and bring them to an event. If the official competition season is over, find a listing of "Community Events" on the FRC portion of the [usfirst.org](http://www.usfirst.org) web site. These off-season events run through the summer and fall. Once they see the creativity, action, fun, and excitement, there's no holding them back!

## Recruit Students

Recruit responsible students from various clubs to help manage the business of running the team, disseminating communications, or writing articles and marketing the team's activities. FRC team size varies between 6 and 100, with the average of 25 to 40 including students and mentors. The trick is to make sure your team will be efficient and effective.

Make sure the kids have transportation, and let them know there is more to being on the team than building a robot. There will be cleanup, fundraising, awards submissions, and marketing roles within the team. Tell them they are all expected to help with the various aspects of the project, and that they have to earn active and productive roles.

All members should have a job, with sub teams big enough to share the load. Students without tasks can distract and disrupt. Target a team size and 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 next year. Consider a "Welcome" letter to those who make the team, and include some team goals, rules, and meeting information perhaps. As years go by, you will be able to include a little team history.

**Application?** - Each team has a different way of attracting and choosing students. With other mentors, decide if your team should have an actual team application and/or interview process. If you do, agree on what items you want to consider putting on the page. This is a good way to capture contact information at the outset and find out if the applicant has an idea of which sub team he or she would enjoy. Have an area where each can list talents, experience, and interests and set dates and advertise the process.

**Interview?** - Does your team want to interview each applicant? Mention that the project is a long one and that dedication is critical to the team's success. It's a perfect time to ask questions to determine if the kids are mature enough to work alone. Do you want some of the students to be part of the qualifying/culling process? There are pros/cons to this decision, so give it some thought.

**Qualifying Criteria** - Does your team want to set down membership criteria such as a minimum grade point, age, or grade level? Realize that sometimes the best team members are those who haven't yet found their niches. Take time with this process since this program provides opportunity for unexpected, life-changing experience and growth for everyone concerned. 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.

## Write a Team Credo

Establish your team credo/philosophy, stressing the attitudes and respect that Woodie, Dean, and *FIRST* value. Brainstorm together and write it all down as your team credo. **Listening to what the kids think is as important as hearing what the adults contribute.**

Get your whole team to buy into the credo by signing what the team sets down as important. Include wording to encourage honesty, integrity, dedication, good judgment, safety, and general all around positive behavior. Stress the importance of keeping up with regular schoolwork. Define what the team can expect from students and mentors.

Let team members and mentors know that following the credo will be a criterion for being on the team throughout the season. You will find that when the team is under pressure, the kids and mentors will remember what it is you are trying to create as a group: A working robot and a productive atmosphere in which that effort can happen. Give all persons a copy as they sign it.

## ORGANIZE FOR SUCCESS

Well-run companies have a management or core group, and most successful *FIRST* Robotics teams work under a similar framework. Consider the word "team" in the old sense of horses or oxen accomplishing work with a plow or moving product. If the animals didn't work well together, the job was tedious and slow. To prevent this type of stall, plan your team structure and mentoring before the season begins.

## Balance the Structure

Strengthen your team with good mentors and facilitators. If you know another *FIRST* team, ask the mentors if they can assist your team. 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). Identify potential local resources. Look at your community with new eyes and think about who can mentor and/or manage, provide a machine shop or materials, help with funding, and/or provide financial/budget management for your team.

Balance management and crew numbers, and get to know your team so you can empower it by coupling the right strengths and weaknesses to grow talents and facilitate learning. Those taught by mentors become "teachers" to a new, green group of rookies. 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 the prize isn't everything. Sometimes the trophy is the trying and working together successfully.

## Tier Your Team

Each *FIRST* team has its own personality, organization, and strengths; and each decides its work distribution and methods. The obvious, necessary working groups of the team are the robot design and build sub teams, but there are management, travel, financial, creative writing, marketing, and artistic groups that can support your team throughout the season.

There are spots for those who haven't yet cultivated the scientific part of their brains. These persons may not ever want to become technically savvy, but each can make real contributions by helping manage schedules and disseminating information and materials, or by designing T-shirts and your robot's unique look. Involve students who take photos, videos, or create 3d animation. They can archive progress and get your team to shine in the public's eye!

**Your Team Core** - Enlist a committed support system. Design a team contract with your mentors, and include a schedule and expectations for the whole team. If yours is a school-based team, confirm the commitment of major supporters and staff.

**Your Sub Teams and Their Makeup** - Before the actual season begins, spread the workload by forming self-motivated sub teams, utilizing unique talents, and giving everyone an opportunity to contribute. Set up your mainframe ahead of time and document each person's leadership responsibilities. The Appendix has organization samples. One very successful, fairly large team uses the following breakdown for its team structure. Of course smaller teams can combine them.

- Strategy and Integration Team
- Drive Team
- Electrical/Software Team
- Mechanisms Team
- Model Shop Team
- Promotions and Awards Team
- Support Team for travel, food, facilities, finance, and materials

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

Name your sub teams and consider combining them if your membership is small. Make sure each has a competent leader and a backup if possible. Besides robot construction, remember there are awards to shoot for, a team look to create, an optional web site to plan and maintain, a business plan to design, media to arouse, and resources and projects to manage.

**The Talent** - Who's good at what? Who wants to learn what? Train younger team members so they can replace graduates next season. Recruit a drive team large enough to practice and cultivate several stand-by operators in the wings. Have one group study the new game and recommend play strategies. Another group might work on a shooting arm as a result of the strategy group's recommendation, and those who are computer clever may enjoy programming the robot.

It's a good idea to have all students on more than one team. Find out what each does well, and put each on a sub team dealing with that skill so that group has strong assets with lots to teach. Put these same students with groups from whom they can learn new skills but not slow the groups.

The following types of experiences are particularly valuable:

Machining	Programming	Photography	Teaching
Electronics/Circuitry	Manufacturing	Construction	Financial Management
Robotics	Engineering:	Design:	Leadership
	Mechanical	Web	
	Electrical	Visual	
	Computer	CAD	

## Set Objectives

Establish *reasonable* goals and meet deadlines. A wise contributor, Senior Mentor Paul Kloberg, advises teams to take advantage of the season before January Kickoff for organization, planning, and training: “**3 hours early----to save 3 days later when time is short and pressure is high.**”

Meet with the team early on and decide what the team’s hopes and goals will be for the season and the future. Make them simple so there is a feeling of accomplishment, such as creating a robot that works, learning how to program and use the design software, and/or submitting entries for award consideration.

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.

## Value Each Mentor, Team Member, and Volunteer

It is extremely important that each person feels valued and respected. Encourage everyone to check egos 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 “No disparaging remarks allowed!” rule.

**Team Building** - Try to attend an off-season event to see how veteran teams function “on stage.” Before the grueling design and build season begins, use some team building games to help everyone get to know each other and work well together. Bring laughter to the group whenever possible. Silly works!

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. Stress fun, but set boundaries!

**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 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 them, bad or good, as appropriate. Make sure team members know they can come to you with complaints or concerns.

## Share Your Visions

Start each meeting with a few positive remarks about your team and its goals. Be a cheerleader. Cultivate personal *and* technological growth. Throughout the process, you should all become partners, comrades, and teachers. Respect, encourage, and compliment each other for each job well done, no matter how small it is. Learn from failures and build on them.

Think “long term” when discussing your team’s structure. Take things like student grade levels into consideration when forming your team. Recruit team members from lower grades also to ensure a steady flow of team experience each year. Upper classmen can help mentor the freshmen and sophomores.

## Record Team Progress

From the outset, be sure to keep an historical record of what your team spends in time and money, the ideas it has during brainstorming and robot design meetings, the problems it experiences as well as the team and personal growth resulting from overcoming hardships. Take lots of pictures and make videos of your team and robot during fundraising and events.

**Partners** - Keep track of the potential partners/sponsors you approach, the results of those meetings, and archive the communications. This way, you can show how the team improves from year to year, which may make it easier to gain or increase their support in the future.

**Alumni** - Monitor your alumni when they graduate. Sponsors like tangible evidence that the FRC program is inspiring students, and *FIRST* appreciates any such information for grant proposals. This historic material will also help you when you solicit for donations/support or submit an entry for a NASA Grant or the Chairman's Award.

**Your Documents and Data** - 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 ring binders for others. Some items will need to be accessible to all, such as the "*FRC Competition Manual*" sections and Team Updates. Make copies of important documents in case they get damaged or lost, and set up an organized way of maintaining at least the following:

- Design ideas and test data
- Sponsor recruiting efforts and related correspondence
- Budget items
- Team contact and emergency information and medical emergency forms.
- E-mails and Updates
- Team archive materials
- Consent and Release forms.

## PREPARE TO BEGIN

Your team should have access to the basic equipment mentioned below.

### Find a Jobsite

Ideally, you will want a machine shop and all its tool trappings for your team's robot birthplace, but if that's not possible, begin to frame Plan B, considering the following while assessing your needs: Team size, equipment, work schedule, safety, and security. Is there space if you choose to build a practice field?

Ask your sponsoring companies and school(s) for suitable space. Survey the town for businesses with unused space they may be willing to donate or rent. Some teams build a robot in a garage! Develop a contract with the facility to ensure understanding of its use, scheduling, etc.

### Obtain Basic Equipment

**It is necessary to have a computer, Internet and e-mail access, and a printer to participate in the FRC program.** To get started, you will need a toolbox and at least the following tools or easy access to them:

- | Hand tools                            |   | Hand power tools                     |
|---------------------------------------|---|--------------------------------------|
| <input type="checkbox"/> Screwdrivers | <input type="checkbox"/> Tape measure   | <input type="checkbox"/> Drills      |
| <input type="checkbox"/> Allen keys   | <input type="checkbox"/> Clamps         | <input type="checkbox"/> Jig Saw     |
| <input type="checkbox"/> Wrenches     | <input type="checkbox"/> Files          | <input type="checkbox"/> Dremel      |
| <input type="checkbox"/> Socket set   | <input type="checkbox"/> Wire Strippers | <b>Machine Tools</b>                 |
| <input type="checkbox"/> Hacksaw      | <input type="checkbox"/> Multimeter     | <input type="checkbox"/> Drill press |
| <input type="checkbox"/> Pliers       | <input type="checkbox"/> Soldering iron | <input type="checkbox"/> Bandsaw     |
| <input type="checkbox"/> Calipers     |   | <input type="checkbox"/> Mill        |
|                                       |   | <input type="checkbox"/> Lathe       |

## Tool Inventory and Care

Find a secure place to store your tools. Make a list of tools, note where each should be stored, and implement a method of inventory and storage. A sign-out sheet may help you manage cleanup and inventory of frequently used tools.

Remind the team about lost time and the aggravation of searching for missing tools or finding an important broken tool. This process will 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, train and assign people to that task. Lost or broken tools are lost time and money.

## CONTINUE WITH A PLAN

Use the *FIRST* Web site in the FRC area under “Documents and Updates” and “Team Resources” to find materials to make the job easier and stay current with the program, its benefits, and its deadlines. Use the helps such as the “FRC Handbook,” which is actually the next step to this reading. Read and distribute the “Team Safety Manual,” listed under “Safety,” and the “*FIRST* Mentoring Guide.”

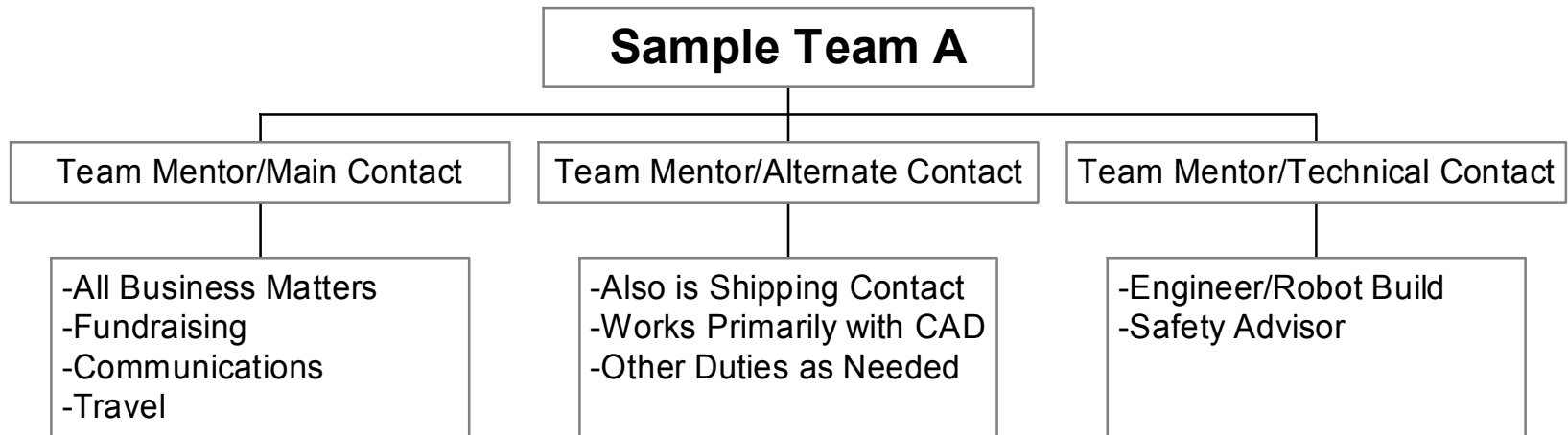
To benefit from years of team experiences, check out the resources from the FRC team community. <http://www.usfirst.org/community/frc/content.aspx?id=478> The “ASME Guide to Starting a *FIRST* Team” advises, “Perhaps the best operating perspective is to **view your *FIRST* team as your own personal company**. You certainly want to have a successful business, so you want to involve the best people on your team. You will need to “hire” effective managers for your company: people that can follow a chain of command, receive delegated responsibilities, and deliver the required products. They must direct the work of motivated and energetic employees...students, faculty, parents, or industry participants. Like the real world, you will need to work hard to recruit talented people to join your company.”

Read ASME’s helpful and insightful guide with views about financial models and cost sharing, impact documentation and the press, and a general schedule for the robot design and build phase.

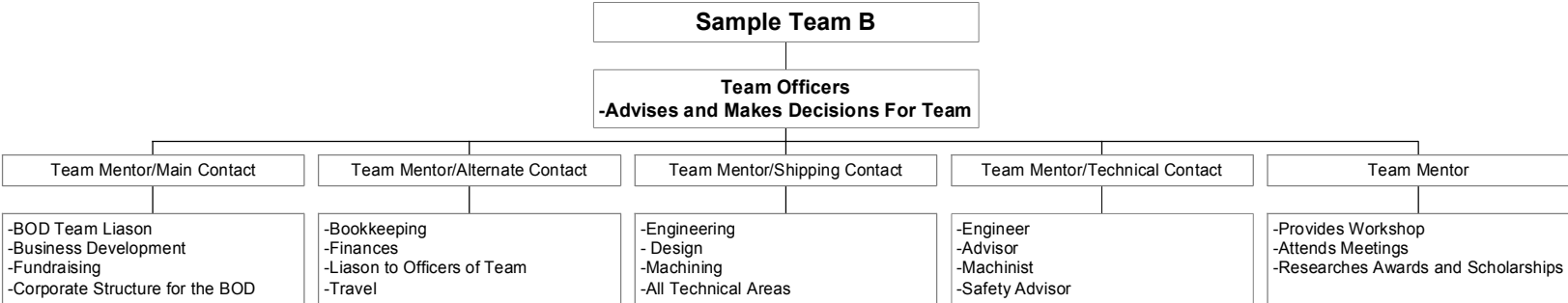
Keep in contact with valuable resources in your area, your Senior Mentor and Regional Director.

# APPENDIX

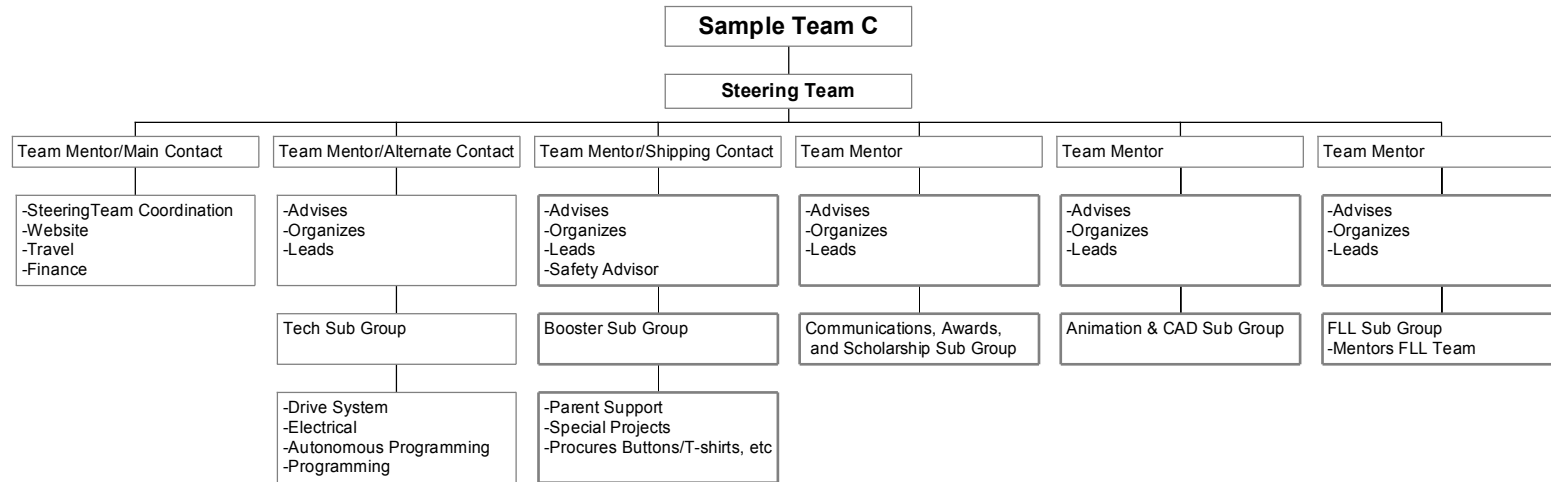
## Organization - Sample Team A



# Organization - Sample Team B



# Organization - Sample Team C



Revision Date October 2007