



Training and  
Support

# 2018-2019 *FIRST*® Tech Challenge Field Manager Manual

## ROVER RUCKUS



Presented By **Qualcomm**

[www.firstinspires.org](http://www.firstinspires.org)

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FOR INSPIRATION & RECOGNITION OF SCIENCE & TECHNOLOGY

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## Volunteer Thank You

Thank you for taking the time to volunteer for a *FIRST®* Tech Challenge event. *FIRST®* and *FIRST®* Tech Challenge rely heavily on volunteers to ensure events run smoothly and are a fun experience for teams and their families, which could not happen without people like you. With over 5,500 teams competing yearly, your dedication and commitment are essential to the success of each event and the *FIRST* Tech Challenge program. Thank you for your time and effort in supporting the mission of *FIRST*!

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## Introduction

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### **What is FIRST® Tech Challenge?**

FIRST® Tech Challenge is a student-centered program that focuses on giving students a unique and stimulating experience. Each year, teams engage in a new game where they design, build, test, and program autonomous and driver operated robots that must perform a series of tasks. To learn more about FIRST® Tech Challenge and other FIRST® Programs, visit [www.firstinspires.org](http://www.firstinspires.org).

### **FIRST Core Values**

We express the FIRST® philosophies of *Gracious Professionalism®* and *Coopertition®* through our Core Values:

- **Discovery:** *We explore new skills and ideas.*
- **Innovation:** *We use creativity and persistence to solve problems.*
- **Impact:** *We apply what we learn to improve our world.*
- **Inclusion:** *We respect each other and embrace our differences.*
- **Teamwork:** *We are stronger when we work together.*
- **Fun:** *We enjoy and celebrate what we do!*

## **Gracious Professionalism®**

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FIRST® uses this term to describe our programs' intent and *Gracious Professionalism®* is not clearly defined for a reason. It has different meanings to everyone. Some possible meanings of *Gracious Professionalism* include:

- Gracious attitudes and behaviors are win-win.
- Gracious folks respect others and let that respect show in their actions.
- Gracious Professionals make valued contributions in a way that is pleasing to others and to themselves.

In the end, *Gracious Professionalism*® is part of everyday life. When professionals use their knowledge graciously and individuals act with integrity and sensitivity, everyone wins, and society benefits.

Watch Dr. Woodie Flowers explain *Gracious Professionalism* in this [short video](#).

### ***Gracious Professionalism for Volunteers***

It is a good idea to spend time going over this concept with volunteers. Provide volunteers with real-life examples of *Gracious Professionalism* in practice before, during, and after the event and recognize great *Gracious Professionalism* when you see it in action!

## ***FIRST Volunteer Rights and Responsibilities***

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### ***NOTICE OF NON-DISCRIMINATION***

For Inspiration and Recognition of Science and Technology (*FIRST*®) does not discriminate based on race, color, national origin, sex, disability, age, status as a veteran who served in the military, religion, gender, gender identity, or gender expression in its programs and activities.

Keep updated at: <http://www.firstinspires.org/about/legal-notice>

### ***Volunteer Rights and Responsibilities***

Volunteers are the most valuable asset to *FIRST*®. Your selfless contribution of time and resources are instrumental in accomplishing our mission of inspiring the next generation of science, technology, engineering, and mathematics leaders and innovators. The foundation of the relationship between *FIRST* and our volunteers is respect.

#### **It is your right to:**

- Be treated with *Gracious Professionalism*®. *Gracious Professionalism* is a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community.
- Feel valued. *FIRST* recognizes the significant efforts that volunteers contribute. The time that you donate not only helps *FIRST* succeed but also builds the *FIRST* community.
- Understand your role. *FIRST* will inform you about what's expected of you, your schedule, any meals you will be provided, any changes to program or policy, and who to contact should you need assistance.
- Expect a safe environment. *FIRST* strives to create and maintain a safe environment for all volunteers and participants and will always factor safety into program planning.
- Receive fair treatment and inclusion. All volunteers will be treated with respect and dignity in inclusive environments. *FIRST* does not discriminate on the basis of race, color, national origin, sex, disability, age, status as a veteran who served in the military, religion, sexuality, gender, gender identity, or gender expression in its programs and activities.
- Reevaluate your time commitment. *FIRST* appreciates all of our volunteers and understands that volunteers experience life situations that may affect their commitment.
- Communicate with your Volunteer Coordinator or your local *FIRST* leadership about:
  - Concerns or limitations that are affecting your volunteer role.
  - Any mistreatment towards you or others. You may be required to fill out a [non-medical incident form](#).

- Contact *FIRST* Headquarters directly if you feel that you are being treated improperly and attempts to resolve issues and conflicts at the local level are not successful. Volunteers can call (800) 871-8326 or email [volunteer@firstinspires.org](mailto:volunteer@firstinspires.org).

### It is your responsibility to:

- Treat others with *Gracious Professionalism*®.
- Follow the schedule and the role description provided for your position. Contact your local *FIRST* leadership if there are any issues.
- Respect others, treat them fairly and kindly. Be inclusive and follow the non-discrimination policy of *FIRST*.
- Follow safety rules and ensure safety of others. Adhere to all [FIRST Youth Protection Program \(YPP\) policies](#). Report any injuries or safety concerns within 48 hours.
- Adhere to the [FIRST Code of Conduct](#).
- Have FUN!

## Tournament Organization Structure

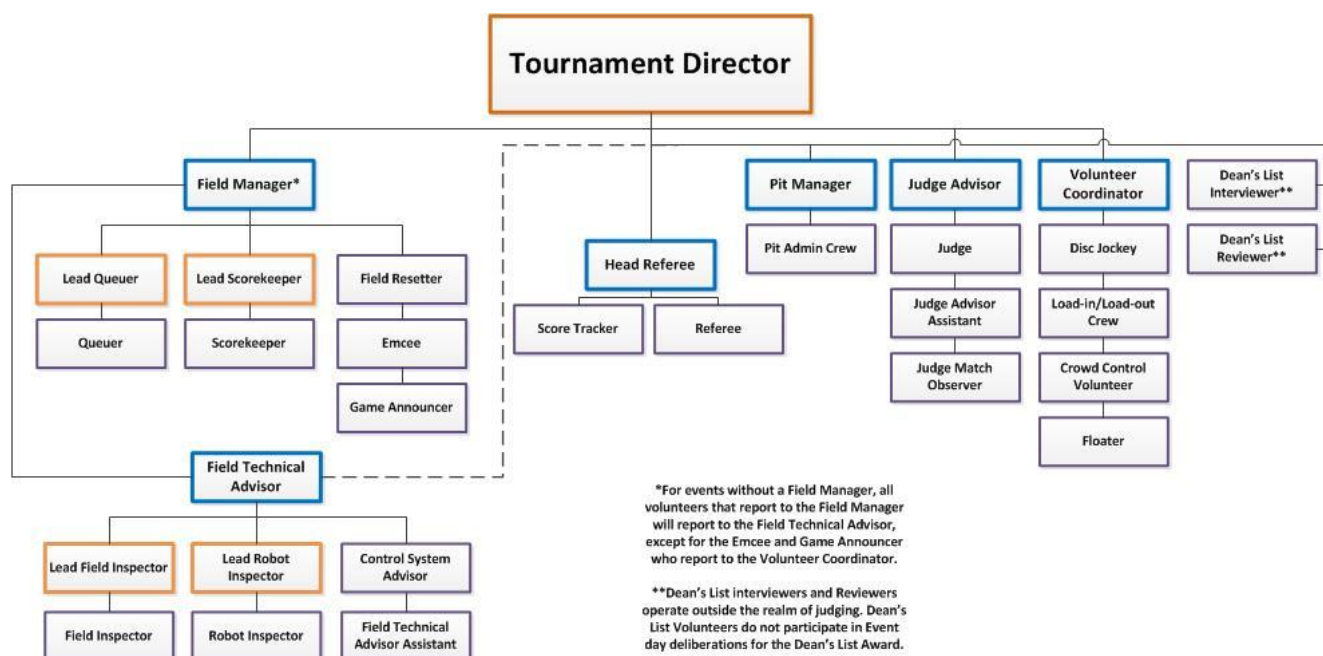


Figure 1 - League Championship, Qualifying Tournament, Championship Tournament Organization

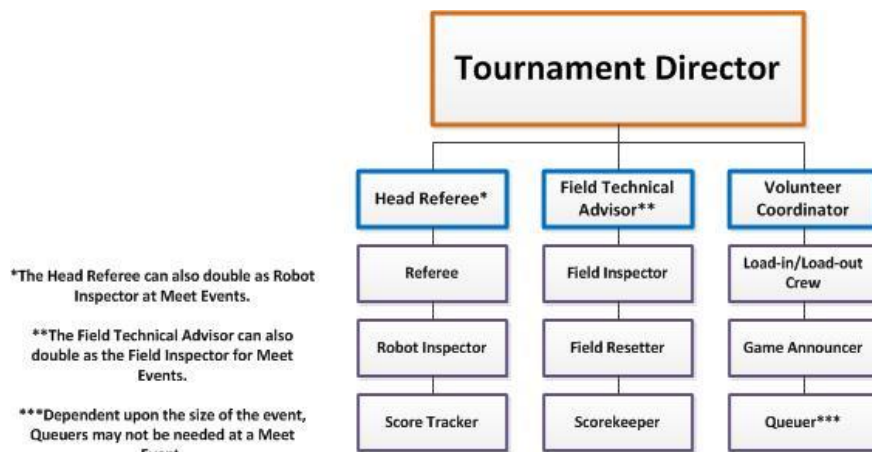


Figure 2 - League Meet Organization

Learn more about the roles of volunteers on our [Volunteer Resources page](#), "Volunteer Role Description".

## Job Description

- **Physical/Technical Requirements:**
  - Technical – Med
  - Physical – Med
  - Administrative – High
  - Communication – High
- **Time commitment:** Additional 4-5 hours on top of the event day.
  - Set-up (*The Field Manager is generally the first one on the field and last to leave.*)
  - During Event
  - Tear-Down
- **Proper Attire:**
  - Wear comfortable shoes, most of the day will be spent standing/walking between the pit area and the competition fields.
  - ANSI Z87.1 certified safety glasses are required in the competition area.

### Prerequisite for Field Manager Role

To serve as a Field Manager, previous experience as a Field Technical Advisor and/or Referee is required.

### Volunteer Training and Certification

Volunteers must apply to their role using the [Volunteer Registration System](#). After the volunteer has applied to their role, FIRST Tech Challenge will send an email to the volunteer with access instructions to training and certifications (if applicable). Emails with access to the training and certifications will be sent within one business day from applying to the role. If you have applied for a role but have not received access to the training, please email [FTCTrainingSupport@firstinspires.org](mailto:FTCTrainingSupport@firstinspires.org).

FIRST Tech Challenge requires Field Managers to be trained before volunteering in the role. Training, including review of the current year's manual and supplemental manual review (i.e.: *Game Manual Part I*) will take about two to three hours. <http://www.firstinspires.org/resource-library/ftc/volunteer-resources>



### **Volunteer Minimum Age Requirement**

FIRST requires that FIRST Event volunteers be at least 13 years old, however, the Regional Planning Committee can increase the age requirement as needed. Adult volunteers cannot have children with them while volunteering nor be responsible for supervising children at the event. Children under the minimum age are welcome at FIRST Competitions with suitable supervision by someone other than a volunteer.

### **Key Volunteer Role Minimum Age Requirement**

Volunteers MUST be at least 21 years old before they can serve in a Key Volunteer Role for the FIRST Tech Challenge. Key Volunteer positions include: Volunteer Coordinator, Head Referee, Judge Advisor, **Field Manager**, Field Technical Advisor, Lead Robot Inspector, Lead Field Inspector, and Lead Scorekeeper. Local Affiliate Partners can make case by case exceptions to these guidelines by contacting FIRST for approval.

### **Bring a Friend!**

Volunteers are a huge part of the FIRST Tech Challenge Program and continuing to inspire students to seek out careers in science, technology, engineering, and math (STEM). FIRST Tech Challenge needs your help in recruiting new volunteers to keep our programs thriving for future generations! If you have a friend or co-worker you think would be interested in volunteering at an event, there are just a few easy steps to help get them involved!

1. Check out our full list of [volunteer opportunities](#) online!
2. Have them apply for the Event in the [Volunteer Registration System](#). Volunteers must be screened before volunteering.
3. Have them contact [Firsttechchallenge@firstinspires.org](mailto:Firsttechchallenge@firstinspires.org) with any questions they may have.

If they are concerned about jumping in head first, no worries! Job shadowing at a FIRST Tech Challenge Event is a great way to get a taste of what a full day's worth of competition looks like. New volunteers can discover ways they can fit their personal skills into a volunteer position!

## **Overview of Responsibilities**

The Field Manager is responsible for all activities in and around the robot playing fields, including:

- Competition playing field set-up and tear down.
- Keeping the robot matches on schedule.
- Ensuring the playing field is set up for each match.
- Repairing playing field game elements.
- Managing a safe environment, including:
  - Everyone is wearing safety glasses;
  - No running;
  - Robots are operating safely; and
  - Cables remain taped down.
- The flow of activity in and around the robot playing fields. This includes Referees, Scorekeepers, Field Reset Attendants, Queuers, teams, Game Announcers, etc.
- Insuring that volunteers have the resources they need and receive breaks.



The Field Manager is NOT responsible for:



- Interpreting game or robot rules.
- Refereeing or judging.
- Repairing robots.
- Explaining their actions, Field Technical Advisor actions, Referee decisions, game play, game rules, robot rules, etc., to coaches, mentors, parents, grandparents, etc.
- Helping teams with detailed robot debugging. This is a sure way to cause a tournament to run late.

The Field Manager and Field Technical Advisor work together to keep the areas in and around the robot playing fields running smoothly. The Field Technical Advisor concentrates on the technical issues (robots, field control system, scoring software, etc.) and the Field Manager is responsible for operational activities (team queuing, playing field reset, etc.). While some smaller events combine the Field Technical Advisor and Field Manager responsibilities, having separate volunteers for each role will keep the workload manageable for each volunteer and is recommended by *FIRST*.

*FIRST* Tech Challenge events squeeze a lot of activity into one day. One of the keys running a smooth and successful event is for teams and volunteers to show up prepared. Teams spend countless hours preparing for competition day and we ask our volunteers to prepare for tournament day as well.

The Field Manager role is comparable to the conductor of a symphony orchestra. They are responsible for directing the flow of activities of groups of volunteers. Each group performs a specialized task in coordination with other groups, and one group's misstep will disrupt the rhythm of the entire competition. The goal for the competition area volunteers is to stay within +/- one match of the published match schedule. If the matches run +/- two matches, it is time to look for ways to speed up or slow down matches so the tournament returns to a rhythm of +/- one match.

Anyone with good people and organization skills can serve as a Field Manager. However, a well-rounded Field Manager will have the following qualities:

- The Field Manager should be someone with high-energy. They will do a lot of walking around the competition area, conversing with teams and volunteers, and helping with event load-in and load-out.
- An experienced leader that can lead volunteers of all ages;
- An empathetic and patient person to work with still-maturing youth or a disgruntled mentor to explain an issue, and work with them to solve the problem during what can be an exasperating time; and
- A cheerleader for teams and fellow volunteers.

**The Field Manager empowers the volunteers to track the schedule, work together to adjust, and help the competition run at the rhythm of the match schedule.**

## Pre-Event Day Responsibilities

Most *FIRST* Tech Challenge events are whole-day events. Field Managers must help with field set up before the event and help tear down after the event. Plan on four to five hours of time commitment as well as the event day time commitment.

It is important before the event the Field Manager reviews this Field Manager Manual. While Field Managers are key volunteers and are not required to pass a *FIRST* certification test to fill this role at an event, they must have certain knowledge and skills to be successful.

The Field Manager plays a key role in insuring that robot matches run smoothly and completing the tasks on the following checklist will help assure a fun and successful tournament day.



- Watch the game animation on the *FIRST* Tech Challenge Game & Season Materials page (<http://firstinspires.org/resource-library/ftc/game-and-season-info>). Focus on understanding what the teams are trying to accomplish during a match and the names of the playing field elements.
- Download the *Game Manual Part 1* and read Section 4 “The Tournament” and become familiar with the tournament terminology and structure. It would be useful to read Section 5 for the robot construction rules, and the *Game Manual Part 2* to learn the game rules. Review the Field Set-Up Guide to become familiar with the setup and breakdown of the field.
- Read this manual thoroughly.
- One or more weeks before event day, confirm the competition playing fields have been assembled and perform properly.
- The Field Manager should work with the Event Director to create a site plan for the competition area. Verify the tables, chairs, power extension cords, audiovisual equipment, etc. are reserved for event day.

## Event Day Responsibilities

### *Event Set-Up Day Checklist for the Field Manager*

- Tournament set-up often occurs the day before the competition. Setting up the competition area and testing the electronics should take two to three hours for a single field tournament and three to four hours for a two-field tournament. The Field Manager is responsible for setting up the competition area as specified in the site plan, including:
  - The playing field(s) – [Sample Layout](#)
  - Scorekeeper’s table
  - Queuing tables
  - Crowd control stations (if applicable)
  - Oversee the installation of the sound, video, and lighting systems
- The Field Manager will work with the Field Technical Advisor and a team of volunteers to set up and test the competition playing field(s) and the practice field(s). The playing field section of this manual contains information about playing field set-up, reset between matches, and repair.



## Event Day Checklist for the Field Manager

- Arrive early; the Field Manager should be one of the first volunteers to arrive on event day.
- Assure the competition area is ready for volunteers and teams. Look for safety hazards, make sure cables are taped down, clean up trash, pick up tools that may have been left behind, etc.
- Check-in with the following volunteers:
  - **Field Technical Advisor** – Has everything been tested and are things ready for robot/field inspection and practice matches?
  - **Scorekeeper** – Has the scoring system been tested and have the teams, sponsors, etc. been entered?
  - **Audio Crew** – Has the sound system been tested? Has a sound check been performed with the microphones?
  - **Video Crew** – Has the video system been tested?
- Hold meetings with the competition area and pit queuing teams. This is a good time to test 2-way radios (if applicable) and review the day's schedule, queuing procedure, queuing travel path between the pit area and the competition area, etc. Direct the Queueurs to bring the teams for the first 2 matches on each playing field to the competition area before the start of the opening ceremony. For a single field event, Queueurs bring teams for the first two matches. For a two-field event, Queueurs bring teams for the first four matches.
- Hold a meeting with the field reset crew and review their responsibilities, proper field set-up, robot match flow, etc.
- Get a copy of the match schedule with times from the Scorekeeper. The schedule is created by the computer system but cannot be generated until the Event Director has determined all the teams have checked in for the competition and passed robot inspection.
- Attend the opening ceremony and be prepared to start the first match directly following.
- The rest of the day will be spent overseeing the activities around the competition playing field(s).

## Field Manager Event Primary Activities

The Field Manager is a manager and observer of the entire competition area to assure the flow of activity is going well. The Field Manager does not perform the detailed actions of any of the volunteer roles that he/she supervises. They need to ensure that Referee deliberations, while important, are also brief, and that Game Announcers keep the matches moving along at an appropriate pace.

### Primary activities of the Field Manager include:

- Ensure the flow of the competition stays on the schedule for the competition.
  - Referees are working quickly and efficiently;
  - Field Resetters quickly reset the field;
  - Game Announcers and Emcees keep the event moving forward; and
  - Queueurs deliver teams to the field on time.
- Check in with volunteers to make sure they take breaks and are hydrated.
- Verify the environment is kept clean and safe.
- Contribute to the sense of fun for the event.

## The Playing Field

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The Field Manager is responsible for verifying the playing fields are built to specification, correctly set up, repaired when needed, and disassembled at the end of the competition. They should bring a tabbed binder or tablet containing the following documents to the competition:

- Game Manual Parts 1 and 2

- Field Manager Manual
- Field Technical Advisor Manual
- Scorekeeper Manual
- Scoring System User Manual
- 2018-2019 *FIRST* Tech Challenge Legal and Illegal Parts List
- Game Q & A Forum Printout (latest version)

These guides and manuals are updated throughout the season. The tabbed binder or tablet should contain the latest versions of these documents. A revision history page at the beginning of each document is the key to keeping track of updates. These documents are in the Resource Library on the *FIRST* website:

<http://www.firstinspires.org/resource-library/ftc/volunteer-resources>.

The Game Q&A Forum is an online community where teams ask the *FIRST* Tech Challenge Game Design Committee questions about the game. The forum is updated regularly until the event season starts in November. Once events start, the forum is updated **Sunday through Thursday at 12:00 p.m. Eastern Time**. Game Design Committee posts to this forum are enforceable rules or guidance that carry the same weight as the information contained in the guides and manuals. The Field Manager should download a printout of the forum on the **Thursday** before the Competition. *FIRST* posts a PDF format copy of the Q&A Forum (<http://firstinspires.org/node/5291>) Thursday afternoon.

### **Field Set-Up**

Playing field construction should start a month or more before the first event of the season. The Field Manager is responsible for verifying that the playing fields are set up properly. Initial playing field verification should be done one week or more prior to competition day. Set up the playing fields the day before the competition. Set-up should take approximately one hour per field depending on the complexity of the game elements; this time will get shorter with experience.

### **Field Repair**

Tools, spare parts, and repair materials should be on-hand should the playing field or field elements become damaged. Spare parts are game-dependent and will vary from year to year. Manager's tool kit should generally contain:

- |                                                |                                                          |                                                                                                |
|------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Flashlight            | <input type="checkbox"/> Pliers                          | <input type="checkbox"/> Cordless drill                                                        |
| <input type="checkbox"/> Tape measure          | <input type="checkbox"/> Diagonal cutting pliers         | <input type="checkbox"/> All-purpose drill bit set                                             |
| <input type="checkbox"/> Multi-meter           | <input type="checkbox"/> Utility knife                   | <input type="checkbox"/> Drill bits for Field assembly<br>- 5/32 hex<br>- Phillips and slotted |
| <input type="checkbox"/> Hex key set (English) | <input type="checkbox"/> Gaffer's tape                   | <input type="checkbox"/> Safety glasses or side shields for prescription glasses               |
| <input type="checkbox"/> Adjustable wrench     | <input type="checkbox"/> Duct tape                       | <input type="checkbox"/> Rubber bands                                                          |
| <input type="checkbox"/> Phillips screwdriver  | <input type="checkbox"/> Cable ties (zip ties) – various | <input type="checkbox"/> Scissors                                                              |
| <input type="checkbox"/> Slotted screwdriver   | <input type="checkbox"/> Assortment of fasteners         |                                                                                                |

### **Field Reset**

Field Reset starts when Referees finish scoring a match and ends when teams, robots, Referees, etc. are on station for the next match. Efficient flow of action during Field Reset is critical to keeping the competition running on schedule. The Field Manager should pay close attention to the following:

- Teams quickly remove their robots from the playing field area after the Referees have given the teams a clear the field signal.
- Field Reset volunteers restore the playing field to its starting condition.

- On-deck teams quickly set-up their robots on the playing field after reset is complete.
- The Head Referee verifies the playing field is in the correct starting configuration.
- The Field Technical Advisor and/or his designee perform a quick visual check of the robots to assure they are good to go.
- The Game Announcer, Referees, and Field Technical Advisor should be on station and ready to start the match.

### ***Transition from Autonomous to Driver Controlled Period***

Starting in the 2017-2018 season, there will no longer be a hard stop following the autonomous period to transition to the driver-controlled period of the match. Once the autonomous portion of the match ends, the scoring system will tell the teams to pick up their driver station. As a visual cue, the scoring system will display to teams that they must pick up their driver station. Teams will only have 5 seconds to pick up their driver station, so they should make sure to pay close attention! After the 5 seconds, there will be a 3-2-1 countdown (both visual and audio through the scoring system) and the driver-controlled period of the match will begin right away.

## **Post-Event Day Responsibilities**

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At the end of the day, walk away from the event knowing you have done your best to ensure the competition was fair for all teams. This is the goal of the Field Manager position. If the winner of the event can say that they've won fair and square, your job is done!

## Appendix A – Resources

### Game Forum Q&A

<http://ftcforum.usfirst.org/forum.php>

Anyone may view questions and answers within the FIRST® Tech Challenge Game Q&A forum without a password. To submit a new question, you must have a unique Q&A System User Name and Password for your team.

Volunteers that apply for a specific volunteer role will receive an email from [FTCTrainingSupport@firstinspires.org](mailto:FTCTrainingSupport@firstinspires.org) with their username and password to the forum. You will receive access to the forum thread specific to your role.

### FIRST Tech Challenge Game Manuals

Part 1 and 2 - <https://www.firstinspires.org/resource-library/ftc/game-and-season-info>

### FIRST Headquarters Pre-Event Support

Phone: 603-666-3906

Mon – Fri

8:30am – 5:00pm

Email: [Firsttechchallenge@firstinspires.org](mailto:Firsttechchallenge@firstinspires.org)

### FIRST Tech Challenge Event On-Call Support

*These numbers are available for event personnel only. Please **do not** call these numbers if you are a team looking for a ruling, a decision, or assistance. We trust that you will not misuse this resource.*

Day of Event Robot Control System Support: 603-206-2450

All other Day of Event support: 603-206-2412

### FIRST Websites

FIRST homepage – [www.firstinspires.org](http://www.firstinspires.org)

[FIRST Tech Challenge Page](#) – For everything FIRST Tech Challenge.

[FIRST Tech Challenge Volunteer Resources](#) – To access public Volunteer Manuals.

[FIRST Tech Challenge Event Schedule](#) – Find FIRST Tech Challenge events in your area.

### FIRST Tech Challenge Social Media

[FIRST Tech Challenge Twitter Feed](#) - If you are on Twitter, follow the FIRST Tech Challenge Twitter feed for news updates.

[FIRST Tech Challenge Facebook page](#) - If you are on Facebook, follow the FIRST Tech Challenge page for news updates.

[FIRST Tech Challenge YouTube Channel](#) – Contains training videos, Game animations, news clips, and more.

[FIRST Tech Challenge Blog](#) – Weekly articles for the FIRST Tech Challenge community, including Outstanding Volunteer Recognition!

[FIRST Tech Challenge Team Email Blasts](#) – contain the most recent FIRST Tech Challenge news for Teams.

### Feedback

We strive to create support materials that are the best they can be. If you have feedback about this manual, please email [firsttechchallenge@firstinspires.org](mailto:firsttechchallenge@firstinspires.org). Thank you!