



Paly Robotics' Resources: 2020-2021 FTC Guide

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Introduction

What is FIRST

FIRST is a global robotics community and network giving students the opportunity to explore STEAM (science, technology, engineering, art, and mathematics) through robotics. FIRST hosts three robotics competitions: FIRST Lego League (FLL), FIRST Tech Challenge (FTC), and FIRST Robotics Competition (FRC).

What is the FIRST Tech Challenge?

The First Tech Challenge (FTC) is an annual robotics competition where teams work together to design, program, and build a robot. Teams also raise funds and conduct community outreach. Through participating in FTC, students gain valuable teamwork, leadership, and communication skills, as well as memorable experiences. FTC is open to students from grades 7-12. Read more about FTC on the [FIRST website](#).



Calendar and timeline

Timeline

September 2020: kickoff, build season

October 2020: build season, qualifying season

November 2020: build season, qualifying season

December 2020: build season, qualifying season, state/regional championships

January 2021: build season, qualifying season, state/regional championships

February 2021: qualifying season, state/regional championships

March 2021: state/regional championships

April 2021: world championships

	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Registration Opens												
Pre-Season												
Kickoff												
Build and Practice Season												
Qualifying Season												
State/Regional Championships												
World Championships												

Timeline definitions

Kickoff: The kickoff is held to announce the season’s theme and game. Teams will learn information about the game rules and playing field.

Build season: During build season, teams design, build, and program their competition robot. Teams also apply for grants to fund their team and conduct community outreach.



Qualifying season: During qualifying season, teams compete with their robot at local tournaments in order to qualify for state/regional championships.

State/regional championships: Teams compete to qualify for world championships.

World championships: Teams compete with their robots worldwide.



Starting a team

FTC does not automatically match students to already existing teams, so trying out for other FTC teams is a great place to start. You can use [this](#) to search for FTC teams in your area. You can also start your own FTC team. No prior experience with robotics is needed to create an FTC team.

Step 1: Find Support

The first step in starting a team is to find people who can support and guide your team. You can locate a FIRST partner or mentor in your area using this [form](#) on the FIRST website. You can also reach out to parents and adults in your community who can guide your team as mentors or coaches. It is recommended to have at least 2 adult mentors/coaches.

Step 2: Make a plan

After recruiting mentors or coaches for your team, you can work with them to develop a plan on how to organize and run your team. Making a timeline will help you run your team efficiently. In your timeline, detail all your actions for each month. For example, the month of September could look like: recruit 10 team members, read the FTC resources on the FIRST website with my team members, and register my team on the FIRST website.

Step 3: Recruit team members

You can recruit a maximum of 15 team members. It is recommended to recruit members who specialize in different areas. For example, your team can be split into design, build, software, and fundraising subteams. No prior experience or knowledge is needed from team members, but it is highly recommended for team members to do research beforehand to get a basic understanding of the subteam they want to specialize in. You can also recruit more mentors or adults to guide your team throughout the competition process.

Step 4: Do research

Before registering your team, it is important that all team members have a basic understanding of how the FTC game works. Doing research early on can help your team in the later stages of the design/build process. Use the game materials/manual document and team resources to learn about what goes into building a robot.



[Overall team resources.](#)

[Resources for building the robot.](#)

[Resources for programming the robot.](#)

[Game materials/manual.](#)

Step 4: Register your team

You can register your team on the FIRST website using this [form](#). You will receive a team number for event registration and a kit of parts to build the robot. Team members and mentors/coaches will also need to register individually. They can register on the FIRST website [here](#).



FTC team operations

The action items in this section are ordered chronologically as your team grows and gains experience.

Fundraising and budget

Fundraising is an important part of FTC. Teams are recommended to create a budget at the start of the build season to track what they spend. Teams can fundraise through a variety of methods, such as reaching out to local businesses for sponsorships, applying to grants, and receiving individual donations from parents and team members. This [page](#) on the FIRST website details all the costs involved.

The robot

After the build season kickoff in September, teams will be given a game theme, game rules, and playing field information. Then, teams can start building their robot for competitions. Your team can choose how much time commitment is expected from each team member, but teams should have at least 2 meetings per week during build and qualifying season.

Once again, use the game materials/manual document to make sure your robot fits all the qualifications to compete.

[Overall team resources.](#)

[Resources for building the robot.](#)

[Resources for programming the robot.](#)

[Game materials/manual.](#)

Documentation

Throughout the robot building process, teams are expected to document everything that happens in order to compete at competitions. Your team needs to create a **Control Award Content Sheet** and **Engineering Notebook**.

The Control Award Content sheet is where you list all the mechanisms and algorithms the robot uses. This [document](#) has all the details.



The Engineering Notebook is where you document all aspects of what you do on your FTC team. You write about designing, building, and programming the robot, as well as fundraising and community outreach. Keep track of what happens at each team meeting and all team operations to put into the Engineering Notebook. The Engineering Notebook gives judges a chance to understand your team on a deeper level. This [document](#) has all the details.

Team branding and community outreach

You can brand your team by creating a team name in addition to your FTC team number, creating a team logo, choosing a signature team color, and creating a website. All these actions make your team stand out and feel established.

On top of building and programming a robot, FTC values community outreach and service. As your team gains more experience and resources (after 2-4 years of participating in FTC), teams can expand their reach and impact their community by showcasing their robot at local schools and events and hosting camps and workshops. Outreach is a great way to market your team and establish a community presence.



Competitions

Awards

Before competing, your team should familiarise themselves with the awards offered at the competition. FIRST recognizes teams for a variety of accomplishments, not just how their robot performs in the alliance. One award that rookie teams can get is the Inspire Award. This award is given to teams who show Gracious Professionalism, meaning that your team members are respectful, positive, and kind during the competition. The team's Engineering Notebook and robot design is also taken into account. Find the full list of awards your team can apply for [here](#).

Sign up for an event

Your team can [sign up and register](#) for a local competition event on the FIRST website. Your team can sign up for as many competitions during the qualifying season (September-January) as you want. Your team can go at your own pace for competing based on progress with your robot. It is recommended that you sign up for your first tournament by December.

Before competition

Before attending the competition, make sure your team has all the necessary documents to give to the judges. Print out and bring your:

- Team roster
- [Field Inspection Checklist](#)
- Control Award Content Sheet
- Engineering Notebook
- [Team Judging Self Reflection Sheet](#)

FIRST has [resources](#) on their website detailing what is needed before competing. Make sure your team meets all the requirements.

During competition

Upon arriving at the event, check in your team and turn in your Control Award Content Sheet and Engineering Notebook.



After competition

After the competition, use the [Team Judging Self Reflection Sheet](#) to reflect on how your team did. This way, your team can use the competition experience to grow and improve.



Paly Robotics FTC partnerships

About Paly Robotics

Paly Robotics is dedicated to enriching the educational experiences of our students and community by increasing STEAM exposure and inspiring others through FIRST programs. Our team is focused on learning new skills, which include technical skills, communication skills, leadership skills, and teamwork. Paly Robotics is 68 team members strong across build, design, software, art, and business subteams. We are proud to be a completely student-run team and our finished projects are always a result of our student's work. Learn more about us on our [website](#).

Paly Robotics FTC team creation

Interested in starting an FTC team? Paly Robotics is happy to help! Our team will assist you along the way and can give specialized help and feedback. Please fill out this [form](#) to start an FTC team with Paly Robotics.

Paly Robotics FTC team mentorship

Does your FTC team need help with building, programming, designing, branding, or raising funds? Paly Robotics is happy to help! Paly Robotics team members can give one-on-one, specialized help and feedback on any aspect of robotics. Please fill out this [form](#) to sign up for a mentorship.



References

[About FTC](#)

[Starting an FTC team](#)

[FTC team operations](#)

[FTC Team management](#)