

Octobots Robotics Parent Guide

Overview:

- Octobots Robotics is a 501(c)(3) nonprofit organization that offers high school students the opportunity to design, build, and code a robot, then to participate in the First Robotics Competition (FRC) with teams from around the world, all under the guidance of local industry mentors.
- The FRC community expresses the FIRST philosophies of Gracious Professionalism® and Coopertition® through the FIRST Core Values of discovery, innovation, impact, inclusion, teamwork and fun.
- Each January FRC releases a new theme and set of challenges for robots to perform, including different player pieces, play field configuration, and points. The team builds and codes a new robot in approximately 4-6 weeks, then attends 2-3 regional competitions, refining the robot between competitions, with the potential to qualify for the world competition in Houston Texas in April.
- During the 2025 season the team placed in the top 5% worldwide (out of over 3900 teams) for overall performance and the top 1% worldwide for autonomous performance. The team also won an Excellence in Engineering Award and a Rising All-Star Award.
- Most students are from Dos Pueblos High School. Students from anywhere in the district may participate, including junior high students, but this is not typical. Many join during their freshman year, but students can join in later years too.
- Prior experience is a plus but is not required.
- Meetings are Mondays and Fridays from 6 – 9pm during the off-season (September – December and May – June). During competition season (January – May) the team meets 6 days a week, weeknights from 6 – 9pm and on Saturdays from 10am – 6pm. Keep in mind that while consistency and commitment are necessary to be on this team, not everyone has to go to every practice as long as your child is communicating with their team about their availability and has consistent and reliable participation.
- Funding comes from industry sponsors, community and parent donations, and team fundraising activities.

First year: The goal during your student's first year is to learn about the tools, machines and programs used by the team, to get to know the team and the team's process, to help the more senior team members, and to learn about FRC competitions. Students will have an opportunity to shadow each of the team subgroups (more on those below). At first many students will not have a set role and may not fully understand what role to take in the long run. This is okay as it gives them time to learn by observing and helping those around them, and to consider which subgroup they would like to participate in for

the next year. Some team members usually participate in an off-season competition in the Ventura area during the fall, and we recommend all new team members and parents attend for a few hours to get a feel for what competitions are like before the build season.

Game Release and Field Build Day: At the beginning of January, FRC will announce the new theme and game rules for the coming year. This is a big day for all Octobots and their parents. Everyone meets for breakfast and watches the video presentation from FRC. Immediately after the video, the team begins reviewing the new rules and planning the robot with their mentors. Parents join together to collect materials and build a practice field for the robot. This is a good time for parents to get to know the other parents while also seeing the students come together. Parents of all skills can help in the assembly of the robot field.

Game Play:

FRC has a set of guidelines that teams must adhere to when building their robots and competing. Generally speaking, students build a rolling robot on a 3'x3' platform. This robot is built to complete a task like collecting balls and shooting them into a basket, or picking up a PVC pipe and placing it on a rod. There are typically multiple tasks, with additional points being awarded for difficulty. Special "ranking" points are awarded to teams who complete special tasks, such as completing a given task a certain number of times.

Competitions are the ultimate place where the robot will perform and are an exciting time. During a competition each team will participate in roughly 10 qualification matches, with each match lasting about 3 minutes. For each match, FRC pairs 3 robots together to create an "alliance", and two alliances play against each other for the most points. The alliances change for each match.

When a match begins, the robots move autonomously (without a driver) to complete tasks for the first 15-20 seconds. After a buzzer sounds, the robots are then controlled by students with a joystick and buttons standing behind a plexiglass wall. Other students stand to the side of the court to help feed the robot the pieces (balls, etc.) for the tasks. Alliance members coordinate before a match to determine strategy so they don't run into each other and can maximize their points based on each robot's strengths. Robots that are injured or unable to achieve points may play defense and simply get in the way of other teams. However, robots may not intentionally cause harm to other robots.

When the qualification matches are complete, the top 8 teams (based on overall points and ranking points) each select three other teams to be part of their alliance for the finals bracket; these alliances remain together for the entire finals bracket. This is when

the relationships made during the tournament really help. The top alliance earns a spot at Worlds. Individual teams also accumulate points that after multiple competitions may earn them a spot at worlds.

Additional Details about the Competition Experience

Competitions are usually 3 day events – Friday is for unloading, setting up, and practicing. Saturday is for qualification matches. On Saturday night the team has a working dinner together. Sunday morning has more qualification matches, and Sunday afternoon is for the finals brackets and award presentations.

On Friday, the completed robot, tools and materials are transported to the competition site. At check-in, student leaders are given their pit location and other materials. The students then help unload their robot, tools and materials to their pit. This is akin to a NASCAR pit with a U-shape of all their tools and materials with the robot placed in the middle. The team then has the opportunity to calibrate the robot on the competition field and to participate in practice matches.

Saturday and Sunday consist of matches scattered throughout the day. The match schedule will be released on the Blue Alliance app (which students and parents should download in advance). Parents are encouraged to help with the food tent and to secure seating in the stands for the students, who will come and go from the tent and stands throughout the day.

Students will have various roles at competitions. Newer team members typically observe, take photos, cheer on the team, walk around the pit area to interact with other teams and observe their robots and pit set up, and in some cases are given the role of scouting (observing and reporting on the performance of other robots). This is a fun time for most students, some even dress to theme, but can be overwhelming for others.

When it is time for our robot match, students who are operating the robot will wheel it into the arena and the others will sit in the stands to cheer and write down their scouting notes. Matches are only a couple of minutes and are very exciting. When they are complete, the students will take the robot out of the arena and back to the pit to be repaired or adjusted for the next match.

When the tournament is complete, students and parents will help to pack up the robot, tools, and materials, and to take down the pit and food tent.

Team subgroups: Students form subgroups to address the various needs of the robot. These subgroups include:

- **Strategy/Scouting Team:** Determines what to focus on and how to best achieve the given tasks. Tracks statistics on other robots and coordinates with other teams during competitions to maximize points.

- **Hardware (CAD) Team:** Uses CAD software to design parts of the robot and uses CNC and other tools to build the various parts of the robot.
- **Electrical/Wiring Team:** Develops the wiring system and then wires the robot.
- **Software (Programming) Team:** Programs the code that tells the robot controls how to operate the driving, collecting or shooting functions. This team also develops the autonomous program for use at the beginning of matches, and develops and maintains the website used for tracking statistics on other teams.
- **Business/Media Team:** The business team updates the website and social media accounts, sends fundraising requests, and promotes outreach for the team.

Mentors: Mentors volunteer their time and expertise to support the team in specific areas from marketing, finance, graphic design, engineering and everything in between. Mentors are paired with student groups and are considered members of the team. Mentors are comprised of calm, respectful adults who may be college students, full time career engineers, and/ or business professionals. Parents may become a mentor in an area they have expertise. Please see the Team Admin/Parent Committee Chair for more information.

Cost: Robots and competitions are expensive! At the beginning of each year it is recommended to donate \$350 for your student to help with some of the costs of the program. Students (and parents) are also expected and encouraged to reach out to individuals or companies who might be interested in sponsoring the robot and the team, and to participate in team fundraising activities. Depending on how much money is raised there are usually additional costs for students who attend competitions to cover food and hotel (\$100-300 depending on the tournament distance). If these costs are too much of a financial burden, please contact the Team Admin/Parent Committee Chair so that we can locate scholarships to assist. We understand that robotics and travel is expensive, but we also want all students to have the same opportunities to participate regardless of economics.

Parent involvement: One of the biggest ways that parents can contribute to the Octobots is to sponsor the team dinners. This is a regular expectation of the parents, especially during Build Season. To do this, parents will sign up on the Octobots dinner page and prepare a meal for around 30-40 students. Parents should be aware that there may be the usual allergies or other dietary restrictions. While the students may say that you should simply purchase 8 Costco pizzas, the students need more variety for a number of reasons. Other popular foods include trays of pasta with sauces on the side that they can add, build-your-own tacos, and hamburgers. All meals should have some sort of salad or vegetable option.

Parents are also encouraged to consider sponsoring the team by bringing it to their employer, vendors or others in the community for potential sponsorship.

At tournaments, parent help is essential. Parents are needed to help manage the food tent where students eat throughout the day, give rides to the tournament, and many other duties that go along with herding 40+ students outside of school.

Student Expectations

- Show up consistently
- Sign up for dinners if they plan to eat within 48 hours of the meetings
- Ask for work if they don't have anything to do
- Have patience – we are a learning and growing group
- Understand that this is as much of a commitment as a sport with morning and afternoon workouts. Consider Octobots Robotics more as an internship and less like a club during the build season
- Understand – you get out of it what you put into it!
- Be respectful of other students, adults, and the facility
- We operate seasonally:
 - Offseason (August – December 2024) approx. 3-6 hours a week
 - Build-Season (January – May 2025) approx. 15-25 hours a week

Student drop-off

Meetings will be in T6 and T5. See the map below for typical student drop-off. There is often little, if any, parking there. If you plan to stick around, consider instead parking in the main student lot and walking through campus.

There is also the admin lot (M) and walk to the back of the campus (2 minutes)



Useful links and apps:

- Team Octobots <https://teamoctobots.org/>
- FRC <https://www.firstinspires.org/robotics/frc>
- Blue Alliance

Lingo

- **Alliance:** a group of 3 robots that play in a match together. During each match there is a blue alliance and a red alliance, robots may end up on either one.
- **Pit:** a 10'x10' area where the tools and supplies for a robot are kept, and the robot is worked on during a competition (because yes, the students will work on the robot between matches even if it is functioning well just in case they can make it function even better!).
- **Scouting:** the process of watching and keeping stats on other robots, which the Strategy Team will use when preparing for each qualification match and for selecting alliances for the finals bracket.