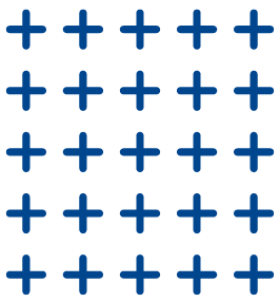


RED RAIDER ROBOTICS HANDBOOK

2022-2023

Inspired by WildStang Team #111





Contributors

Version 1.0

Spencer Kaufmann

Jacob Swigert

Harsshitha Balachander

Andrew Kasmiskie

Leyna Nicla



Welcome	3
Mission Statement	4
1.0 Red Raider Robotics Participation	4
1.1 Schedule	4
1.1.1 Pre-Season	4
1.1.2 Build Season	4
1.1.3 Off-Season	5
1.2 School Work	5
1.3 Attendance	5
1.4 Behavior	6
1.4.1 Stoplight Behaviors	6
1.4.1a Green Light	6
1.4.1b Yellow Light	6
1.4.1c Red Light	6
1.5 Safety	6
1.6 Uniforms	7
1.7 Outreach	7
2.0 Travel	7
2.1 Travel Eligibility	7
2.1.1 FIRST Consent and Release Form	8
2.2 Travel Team Selection Process	8
2.3 Competitions	8
2.3.1 Regional Competitions	8
2.3.2 FRC Championship Competitions	8
2.3.3 Off-Season Competitions	9
2.4 Behavior at Competitions	9
2.4.1 Health	9
3.0 Parents	9
3.1 Parent Responsibilities	9
3.2 Parent Volunteer Opportunities	10
3.3 Team Meals	10



4.0 Team Communication	10
4.1 Basecamp	10
5.0 Team Structure	10
5.1 Subteams	11
5.1.1 Manufacturing	11
5.1.2 Design	11
5.1.3 Programming	11
5.1.4 Business	11
5.2 Leadership Positions	11
5.2.1 Team Captain	12
5.2.2 Team Lead	12
5.2.3 Project Manager	12
5.3 Specialist Roles	12
5.3.1 Pit Crew	12
5.3.2 Electrical Lead	13
5.3.3 Tubing Lead	13
5.3.4 Data Analysis Lead	13



Welcome!

Welcome to Red Raider Robotics! We are so excited to have you on the team. This handbook contains any and all information you will need to know to be a successful member of this team. It also contains guidelines and expectations that we expect you to follow during your time on the team. Our success depends on all members of our team working together and maintaining the vision laid out in the following pages. We are just beginning to create our legacy, and we hope you can contribute to that while growing yourself as well.

Mission Statement

Red Raider Robotics is a FIRST student led organization in the Sheboygan area who builds people; not just robots. This is done through teaching and mentoring necessary skills to be successful in life beyond school and robots.



1.0 Red Raider Robotics Participation

Being a member of Red Raider Robotics requires a large time commitment outside of school hours. All members are required to attend all meetings, barring an acceptable excuse. We understand students have other commitments, such as jobs and extracurriculars, which are valid excuses. However, all of these things should be communicated to leadership and coaches prior to the absence.

1.1 Schedule

1.1.1 Pre-Season

Pre-Season meetings will start in October and go until the season's game reveal (early January). These meetings are on Tuesdays and Thursdays from 6-8 pm. During pre-season meetings, sub-team leaders will prepare and educate their subteam for the build season. These meetings will also include pre-season projects curated by the project managers.

1.1.2 Build Season

The build season lasts from kickoff until our last competition, usually in April. During the build season, the team meets on Mondays, Tuesdays, and Thursdays from 5:30-8:00 pm and Saturdays from 8:00 am-4:00 pm. The goal of this period is to design, build, and program an entire robot in six weeks, so it is absolutely crucial that attendance remains consistent. After the first six weeks, competitions will begin. After each competition, the team will revise and improve their robot using the experience they gained at the competition.

1.1.3 Off-Season

After competitions are over, the team enters the off-season. By this time, the team will have selected the leaders for the next season. The off-season serves as a transition period as the old leaders start to hand off responsibilities to the new leaders. During the off-season, the team will primarily focus on voluntary work around the community and improving upon the technologies we have access to.



1.2 School Work

School work always comes first. Team members are expected to maintain their grades to a proficient level while participating on the team. If students find it necessary to use a RRR meeting time for school work, they are expected to communicate that with their subteam lead and project manager. If robotics gets in the way of coursework, students are expected to communicate with their teachers in order to keep up to date on all of their classes. Students are required to have a minimum of a C in all classes. School comes before robots.

1.3 Attendance

It is the responsibility of the student to maintain good attendance. This requires students to attend all meetings, barring acceptable excuses. This year we will be having a time requirement of 8 hours every week during the build season. It is expected that if you are going to be absent, a captain or coach is aware of when and why beforehand. If these expectations are not met, a decision can be made by the coach and student leadership on whether or not you will be able to attend special events. If you are concerned about attendance issues or not being able to fully participate, please reach out to the coach or captains. Students lead very busy lives, we are willing to accommodate your schedule if you reach out.

1.4 Behavior

As a member of Red Raider Robotics, you represent all of SASD, the Sheboygan community, and our sponsors. When you are in the school for meetings, you are expected to act the same way you are expected in class. Treat others with respect and be a role model for others. At events, you are to always be wearing all Red Raider merch so that you can be identified as a member of the team. Be polite and respectful to other teams and all event staff. To everyone else at the event, you are the face of the team. Always travel with a group and communicate where and what you are doing to the assigned adult mentor.

1.4.1 Stoplight Behaviors

1.4.1a Green Light

This behavior includes following the handbook! It also includes mutual respect for others, coopertition, gracious professionalism,



1.4.1b Yellow Light

Swearing, crude humor, apathy, uncooperation. This also includes rough housing, excessive attention towards teammates, and one-on-one time with others.

1.4.1c Red Light

This behavior includes running, pushing and shoving, negative name-calling, making messes, fighting, swearing AT someone, stealing, and starting rumors. Also, expressions of personal affection are prohibited at all times. Couples must travel in a group at all times. Couples may not wander off or sit alone. They should not appear as a couple but as part of the team.

1.5 Safety

Safety is always first. Do not use any tools that you are not trained to use. All team members that use power tools or equipment in the ATC will have to pass the proper safety tests first. Safety glasses are required in the ATC and the pits at a competition.

Any student intentionally using tools inappropriately or who presents a safety problem around machines will jeopardize their participation in the robotics program.

1.6 Uniforms

You are responsible for your team attire at competitions. Everyone is provided a shirt before the build season. It is mandatory to wear the team shirt during competitions. Keep in mind that you represent team 6381 when you are in uniform, so be responsible.

1.7 Outreach

Outreach is an important aspect of connecting with your community and other FIRST programs. All team members are required to participate in a minimum of one outreach activity during the season.

An annual event Red Raider attends is Maker Faire (Sheboygan & Milwaukee). The fair provides an outreach opportunity for students to showcase the robot. We also try to attend local STEM events in Sheboygan. This year we partnered with the JMKAC and got to showcase our robot and have a workshop running at Levitt Amp concerts.



2.0 Travel

Many opportunities throughout the season will require the team to travel. Events such as competitions and some outreach opportunities are not at North High School, and transportation will be necessary.

2.1 Travel Eligibility

To travel to competitions with the team, members must meet the following criteria:

- Maintained good attendance during the build season
- Have a designated role during the competition (scouting, pit crew, etc)
- Demonstrates a positive attitude, and shows team spirit
- Meets behavioral standards listed above
- All required forms and fees turned in on time

2.1.1 FIRST Consent and Release Form

Each season, parents must fill out the FIRST consent and release form on the FIRST website for their students. This ensures that your child is part of the team and can attend competitions.

2.2 Travel Team Selection Process

Team captains and mentors will consider many criteria when selecting who will be selected to travel to a competition. Attendance, grades, and impact on the team will all be considered when making these decisions.

2.3 Competitions

Each season, Red Raider Robotics participates in various competitions involving the current game. Below are the different types of competitions that we compete at.

2.3.1 Regional Competitions

Regional Competitions are official events regulated and organized by FIRST. The competitions on a given weekend last from Thursday to Saturday. Team members are assigned to hotel rooms with 2-3 other team members. We travel to the competition and back to school as a team by bus. A travel fee is



required for every member participating in the event. The team attends 2-3 competitions per year and they can be anytime from February to April. Some of the places we've travelled to for competition before include La Crosse, Milwaukee, and Chicago. Competition dates will be announced during the preseason.

2.3.2 FRC Championship Competitions

If our team competes well enough at a competition, the team could be invited to the FIRST Championship Competition (Worlds) in Houston. This competition is in late April. The competition would be run similarly to a regional competition, although this is a much larger commitment due to how far away it is.

2.3.3 Off-Season Competitions

Scrimmages are competitions that provide teams with an opportunity to practice and test mechanisms. Scrimmages are hosted early in the build season and during the offseason. These are single-day events. We've attended scrimmages in Sussex and Mukwonago.

2.4 Behavior at Competitions

Behavior at competitions is extremely important. Our team has been tagged as "The team with the banana hats," so any behavior can be easily traced to Red Raider Robotics. During competitions, we consistently practice gracious professionalism and establish positive connections with other teams.

2.4.1 Health

If there are any health concerns before a competition or during a competition, make it known with a mentor immediately.

2.4.2 Chaperones

Before departure for a competition, each student will be assigned to a chaperone for the duration of the event. If you have a reason to leave the competition facility, check in with a mentor first.



3.0 Parents

While Red Raider Robotics is student-led, there are some roles that the parents are expected to fill.

3.1 Parent Responsibilities

As a parent, you and your child are expected to create a plan for transportation to and from robotics meetings. During Saturday meetings in the build season

3.2 Parent Volunteer Opportunities

If you are interested in volunteering with Red Raider Robotics, please contact head coach Tim Pasche (tpasche@sasd.net). There are also many volunteer opportunities for team members throughout the season that parents may be invited to help with.

3.3 Team Meals

Saturdays during the build season we will be having parent sponsored meals for lunch. Even though it is not required for each student to sponsor a lunch, it is highly recommended that at least one parent volunteers for lunch every week. If this is not possible, then we will have students bring their own lunch on Saturdays.

4.0 Team Communication

All communication outside of meetings will be on Basecamp for all students and parents.

4.1 Basecamp

- At the beginning of the school year, each student and parent(s) will create an account and join the Red Raider Robotics Team on Basecamp.
- Everyone will be able to access and communicate on the Red Raider Robotics HQ, which will have all important announcements, forms, and questions answered.
- Each student will be added to their specific subteam on Basecamp, where other members of their subteam can communicate and collaborate.
- Important announcements on Basecamp will also be sent to everyone's emails.



- All members of the team will undergo “training” to learn the basics of Basecamp and understand how to use it.

5.0 Team Structure

The structure of the team is carefully created before each season. While constructing the structure, efficiency and communication are our top priorities. The team structure often changes with each season that passes, providing more room for improvement.

5.1 Subteams

Each member of the team belongs to at least one subteam. During the preseason, the students have the opportunity to experience any subteam they have an interest in to prepare themselves

for the build season. Upon joining a subteam, students will also be added to the team’s Basecamp team to receive updates and notifications regarding the team.

5.1.1 Manufacturing

- Manufacturing is responsible for the construction of the robot
- Fixes the robot during competitions

5.1.2 Design

- Design team is responsible for the design of the robot, including conception, CAD, and steps to implementation
- Students spend the preseason learning CAD and manufacturing processes.



5.1.3 Programming

- Programming team is responsible for coding the drivetrain, autonomous, sensors and whatever else is necessary for the game
- Students research how to make the robot easier to use for drive team

5.1.4 Business

- Team media
 - Website
 - Social Media
 - Photography/Videography
- Budget management
 - Sponsors
 - Part Ordering
- Competition Planning
 - Hotel and Restaurant Reservations
 - Bussing accommodations
- First Awards
 - Chairmans
 - Safety Animation
 - Business Plan
- Fun activities
 - Apparel
 - Buttons
 - Outreach

5.2 Leadership Positions

Red Raider Robotics has many leadership roles for its members to pursue. At the end of each season, the captains and mentors select new leadership for the next year.



5.2.1 Team Captain

- Meeting agendas
- Deadlines/overall team schedule
 - Collaboration with project managers to set deadlines during the build season
- Clear and effective communication with subteam leads and project managers
- Ordering oversight with Business Team
- Track receipts & credit card statements
- FLL & FTC Oversight
- Track accountability for Team Leads & Project managers
- Grade check accountability

5.2.2 Team Lead

- Preseason plan
 - Subteam specific agendas
 - What needs to be covered? (relevance of content for FRC)
- Maintain good culture and community within the subteam
- Teach/pass down knowledge to subteam members

5.2.3 Project Manager

- In charge of a robot subsystem (drive train, intake, etc)
- Delegation of tasks to members helping with the subsystem
- Communicate with other project managers and also subteam leads
- Maintain deadlines

5.3 Specialist Roles

There are some smaller roles that are fit for a small number of people or only needed during a small part of the season

5.3.1 Pit Crew

Prepares the robot before each match at competitions
Makes repairs during competition



May travel to competitions a day early to set up the pit

5.3.2 Electrical Lead

Knowledgeable of the robot's electrical parts
Experienced in wiring and wire management

5.3.3 Tubing Lead

Knowledgeable of the robot's pneumatic parts
Experienced in tubing and tube management

5.3.4 Data Analysis Lead

Prepares and leads scouting at competitions
Aids drive team and captain in creating alliance picks at the competition



AO AMERICAN
ORTHODONTICS



KOHLER®



rockline®

SWIGS
PROPERTIES

