

PRACTICAL TEAM MANAGEMENT

FOUR AREAS TO CONSIDER:

- **OVERALL ORGANIZATION**
- **DOCUMENTS/FORMS**
- **BUDGETS**
- **AND TIMELINES**



When people say robotics team, they tend to only think of the robot.



It is the equivalent of running a small business.

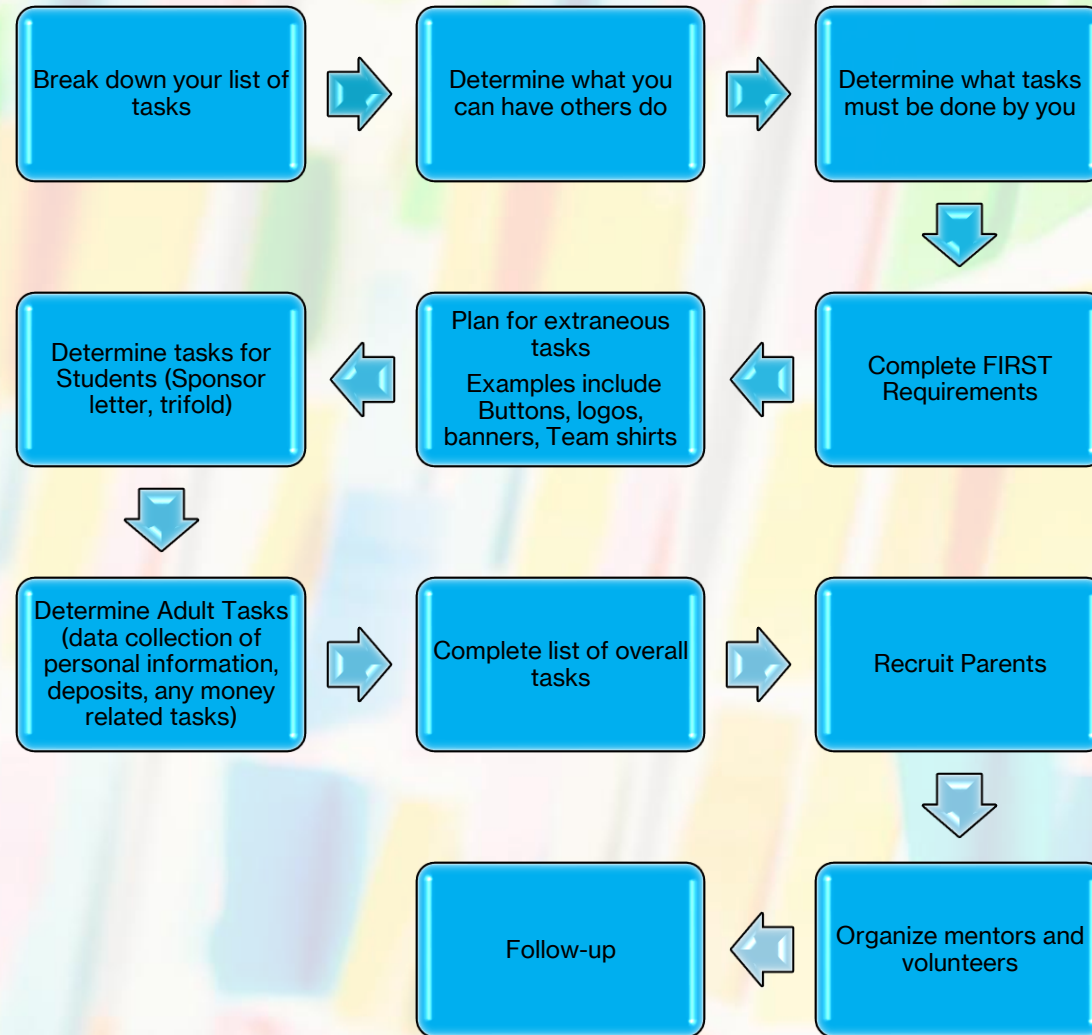


You need both a plan and the people to reach the goal.



Documenting the process and the plan will help win awards.

ORGANIZING THE SEASON



ORGANIZING THE MEETING

Before the meeting :

- Establish goals
- Determine if you will need outside help

Start of meeting:

- Attendance
- Maybe an ice breaker
- Go over plan for the day
- Break up into groups

During Meeting:

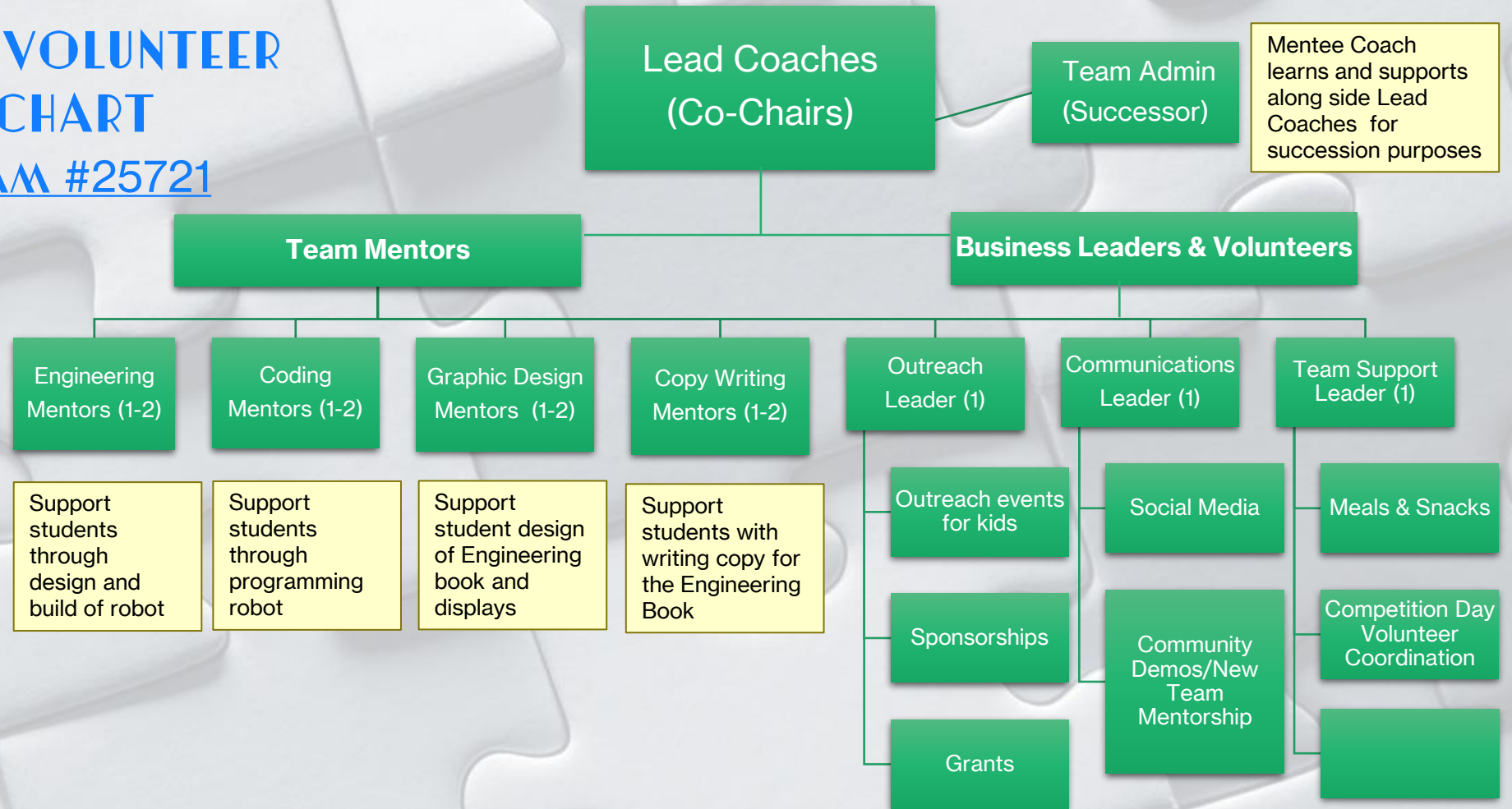
- Take pictures
- Follow-up with groups on tasks
- Move around labor

Close of meeting :

- Summarize what got accomplished
- Clean-up
- Plan next session tasks

SAMPLE PARENT VOLUNTEER ORGANIZATION CHART

LIBERTY BEES FTC TEAM #25721



- **One person may have to fill multiple roles. This is not uncommon.**
- **Recruit people and spread tasks among various grade parents.**
- **Prevent total knowledge loss from year to year.**

FIRST WANTS TEAMS TO BE SUSTAINABLE.

SAMPLE QUESTIONS TO THINK ABOUT WHEN MANAGING THE SEASON

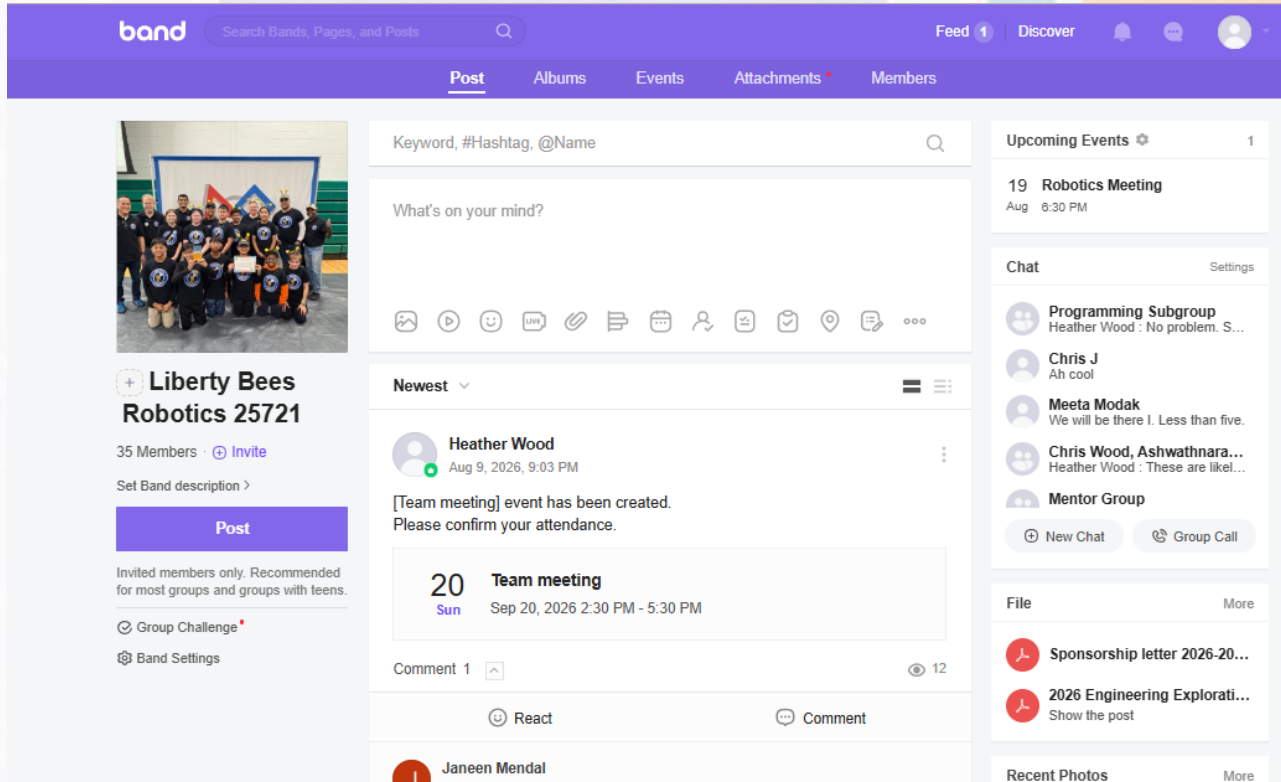
Engineering	CAD	Graphic Design/ Copy Writing	FIRST	Outreach/Competitions
Do they have the parts they need?	Is everyone bringing their tablets/laptops?	Do you have a logo?	Are the lead Mentors both assigned, trained and background checked?	What supplies do you need? Do we need t-shirts? Do we have a logo?
Are they going to hit your ordering deadline to get things back in time for them to build?	Are they going to need filament? What type?	Are they bringing their Chromebooks/ laptops?	Is the registration paid?	Do you need prizes/ give aways?
Do they have the tools they need?	If the high school is printing something for them, are they going to meet the high school's submission time for your turn around time?	Do they need trifold/ and art supplies?	Do all team members and mentors have a consent and release on file?	Do you need button supplies?
Are their parts staying organized?		Are we ready to print the portfolio? Do we have binders?	Have you ordered field parts?	Do you have meals planned?
Do you have adhesives, organizers, and/or possible writing materials for them?		Have they read the rules and Judges questions? Do they have an accessible copy of this season's competition manual and judge's questions?	Have you requested your competition fee check in time for process and pick up before your event?	Do you have a banner? If you do, do you know where it is at and where all the parts to the stand are?

Lead Coaches - Does the team have a space to meet? Do we need to book one? How many times do we need to meet? Do we need to follow up on Parts, Forms, or Shirts?

ANTICIPATING THE NEEDS OF EACH GROUP IS CRITICAL IN PLANNING TASKS.

COMMUNICATION METHODS

One of the most important part of staying organized is communication of expectations and follow-ups



SOME METHODS TEAMS USE

- Contracts with students and parents
- Email
- Band
- WhatsApp
- Texting



Texting can be problematic across Android and Apple.

KEEP IN MIND THAT YOU SHOULD ALWAYS INCLUDE A PARENT OR GUARDIAN ON YOUR COMMUNICATIONS WITH STUDENTS.

DOCUMENTS AND FORMS

Required documents or you can not compete

- First requires that all mentors have youth protection training and background checks.
- **You will not be able to register until both lead coaches have their documentation taken care of or invite team members to the page.**
- Each student and mentor on the team must have a consent and release signed.
- A roster must be printed prior to each event with only the students and mentors who are at the competition that day.



New this year – the team administrator needs to fill out the guarantor information tab on the FIRST website. They will be contacted by FIRST to confirm.

SCHOOL DISTRICT DOCUMENTS THAT MUST BE COMPLETED

- If you plan on doing outreach on a school day or having another parent take a child to a competition, be aware that you may be required to have a permission slip for each student and a staff representative will need to be present.
- Grade checks should also be completed prior to competitions.



DOCUMENTATION AND FORMS THAT HELP MAKE LIFE EASIER

“Get to Know You”
contact form (phone
numbers, email,
allergies, dietary
restrictions)

Parent and Student Contracts

Approved Vendor List

Deposit form for the school

Contact information
for: team leads,
mentors, district
employees, and
vendors

A spreadsheet or notebook that students are documenting their work in every week

Spreadsheet for outreach hours and attendance.

Photographs documenting the process and events

Sign up Genius forms for food and volunteers

[illegible]

Even the best planned budget will likely have items that have been forgotten or are sudden additions.

BUILD IN A BUFFER FOR UNEXPECTED EXPENSES.

BUDGETS

KNOWN EXPENSES RELATED TO FIRST

- Registration - \$325
- Competition fees - \$125 per competition
- Background check fees for mentors – approximately \$10 per mentor
- Field cost - \$399- \$599 plus shipping

EXPENSES YOU DON'T THINK ABOUT:

- Paper
- Pencils
- Expo Markers
- Food costs for competition days
- Tape
- Glue
- Thank you cards
- Totes
- Ziplock bags
- Sharpies
- Foam Tiles
- Containers
- Expedited Shipping

EXPENSES THAT ARE NECESSARY, BUT COSTS CAN VARY:

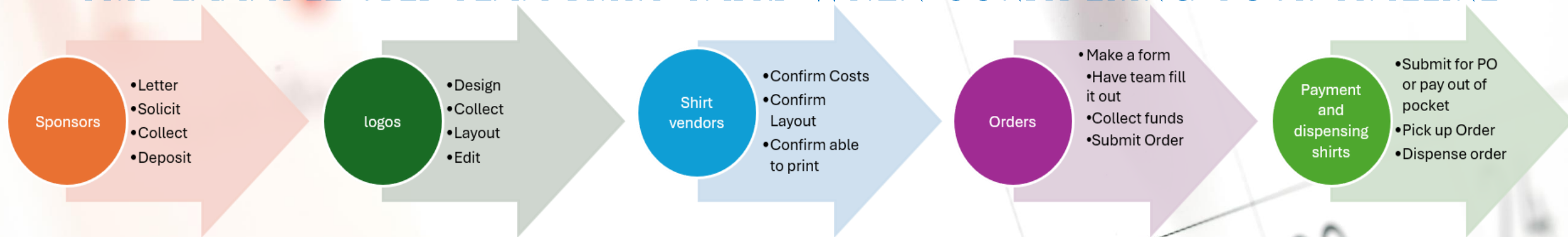
- Robot parts
- Extra Batteries and Chargers
- Safety Glasses
- A good cart and/or wagon
- Printing costs for portfolio/photos
- Trifold
- Good tools
- First Aid Kit
- Buttons
- Laptop for programming
- Extension cord
- T-shirts

TIMELINES

- Lay out a timeline for the season for each subgroup
- Estimate completion dates
- Schedule extra meetings to get back on schedule

An important part planning the timeline is knowing all the processes and how they interact with each other.

THIS EXAMPLE USES TEAM SHIRT TASKS WHEN CONSIDERING YOUR TIMELINE



BEING ABLE TO WORK BACKWARDS FROM YOUR COMPETITION DAY AND KEEPING PEOPLE ON SCHEDULE IS CRUCIAL TO SUCCESS.

COMPETITION DAY EXAMPLE



FIRST

- Lead Coaches, Mentors, and Volunteers are trained.
- Students are registered
- Consent and Releases are signed for all students, Mentors, Volunteers and Coaches
- Competitions are selected
- Registration is paid

Pre Competition

- Set up Sign Up Genius
- Obtain Check for Payment
- Two Copies of Roster and Portfolio
- Pull together the items you will need for pit (Power strip, extension cords, tablecloth, tri fold safety glasses first aid kit, buttons, chair or stool)
- Items for Cafeteria (plates, napkins, food, drinks)
- Go over rules and expectations
- Practice Speech (have back-ups for people)
- Label everything

Competition day

- Check in with roster of students and mentors who are present and registration fee
- Break up and send one group to set up the pit other to set up the cafeteria area
- Put a person outside pit area with safety glasses
- Have early meeting with days expectations (presentation, start times, and behaviors)
- Adjust robot and practice
- Assign students times to man pit table
- Confirm which parents are your runners and which are your cafeteria crew, which are helping herd the kids
- Pick up your portfolio and score sheet

Post Competition

- Reorganize
 - Turn the registration receipt into school
- Do post-competition analysis
 - Prepare for the next competition
- Modify speech, portfolio, and robot accordingly

ESTIMATED TURNAROUND TIMES

Remember - You are working with volunteers and students so cushion your turnaround times.

You have students roughly 6 hours a week during the season.

You have volunteers approximately 2-10 hours a week depending on their work travel, clients, and other demands of life.

FIRST AND OVERALL GROUPS ESTIMATES			
All checks and Purchase Orders		Estimate a minimum of 2 weeks worst case for new vendor 6 weeks	
FIRST registration		2 weeks	
FIRST mentor training and background checks		1 day - 1 week	
Team Members /Mentors Invites and Completion of FIRST data		1-2 weeks	
MARKETING	ESTIMATED TURNAROUND	BUILD/PROGRAMMING	ESTIMATED TURNAROUND
Logo (if new)	1-4 weeks	Preliminary design of the robot	1-2 weeks
Writing a Sponsor Letter	1 -3 days	Order parts	2-6 weeks
Soliciting Sponsors	2-4weeks	Build/ Test/ Modify robot	4-6 weeks
Depositing and seeing the checks in the Account	2 -3 weeks	Programming the Robot	4-6 weeks
		Practice Driving	2 weeks
Setting up your t-shirt lay out	1-2 weeks		
Collecting orders for the t-shirts	1-3 weeks		
Ordering your t-shirts	3-5 weeks		
Submitting for payment for t-shirts	2 weeks	COMPETITION DAYS	
Banner Design	1 week	Set up Sign up Genius for Food and send it out	1 week
Printing Banner	1-2 weeks	Set up Sign up Genius for Volunteers and Send out	1 week
Portfolio	3-8 weeks	Fill spots on sign up	1-2 weeks
Printing Portfolio	1-3 days	Collect all the things for both the pit and the cafeteria together	1 week
Buttons purchasing supplies	1-2 weeks	Request check for competition	1-2 weeks
Buttons assembly	1-2 weeks	confirm attendance/print roster	1 week
Trifold	1-2 weeks	print peer to peer awards	1-2 days
Getting shirts picked up and distributed	1 week	If food has to be picked up, determine pick up person	

Pre-Season: Session Plan (May – August 2026)

Subjects/ activities to cover by group							
Session	Date	All People	Build/Drive	Design / Engineering	Software	Marketing	Admin
1st session May	5/6/2026	Puzzle (5min) intro game theory (20min) discuss Code of Conduct (5min) fundrasing discussion/ brainstorm (10min) end session report out (15min)		CAD training/ remodeling on Mk3. Model a sub-assembly (chassis with wheels and motors). Make sure that mounting holes line up correctly. Learn the "Use" project tool and the "Offset" sketch tools to reference existing geometry	Correct Mk3 software for Demos	Prep for school demos	Collect signed of code of Conduct forms/ distribute remainder of forms/ Set up on boarding document /Set up expense sheet
2nd session May	5/20/2026	Puzzle (5min) Teambuilding excercise (?) Into simple machines (20min) end session report out (5min)		CAD training/ remodlng on Mark 3 Benchmarking major system types/ application of simple machines Learn how to use the variable table (#Length, #Width). This should make it easier to adjust robot dimensions easily.		Outreach/ start formatting portfolio	Hopefully, if we are registered, get invites out for FIRST page for Mentors and kids / Submit for parts
1st session June	6/3/2026	Puzzle (5min) end session report out (5min)		CAD training/ remodlng on Mark 3 Driver training Mark Cad Library usage - learn how to search for and import GoBilda parts		Outreach documentation, start portfolio	Revise Sponsor letter/ revise contracts
2nd session June	6/15/2026	Puzzle (5min) end session report out (5min)	Build Mk4 chassis Driver training	Advanced Mating - Focus on Mate Connectors Use the Between entities Mate Connector to find the exact center of a hole or a channel		Portfolio	Hand out contracts
1st session July	7/1/2026	Puzzle (5min) end session report out (5min)	Install Mk4 camera Driver training	Create a 2D Sketch in an assembly that represents the skeleton of a robot (like a robot arm or a lifting slide) "Derive" that sketch into other parts so that the frame automatically follows the skeleton.		Portfolio work/Sponsorship Speech	Follow-up On Contracts/ Read Preliminary Rules
2nd session July	7/15/2026	Puzzle (5min) end session report out (5min)	Driver training	Build up a arm structure that mounts to the chassis, with holes lined up.	Camera programming	Portfolio/ Solicit Sponsorships	Register
1st session August	8/5/2026	Puzzle (5min) end session report out (5min)	Driver training	Define locations for the control hub, the expansion hub, and the battery.	Camera programming	Solicit Sponsorships	Send out First Invites
2nd session August	8/19/2026	Puzzle (5min) end session report out (5min)	Driver training	Prepare for the engineering portfolio: - Show an exploded view of the robot and it's parts - Calculate the center of gravity for the robot			Collect Dues/ Follow-up on Paperwork

RECRUIT, TRAIN, SOLICIT SPONSORS, GET DOCUMENTS IN ORDER, DO YOUR OUTREACH, START CHASSIS AND PORTFOLIO

Regular Season: September – December 2026

Schedule - Regular Season							
Marketing/Outreach Goals	S	M	T	W	T	F	S
		31	September 1	2	3	4	5
Make new slide for Liberty Screens/ make new locker signs			Finalize t-shirt order		No School/ Outreach event (Amazon Warehouse tour)		
	September 6	7	8	9	10	11	12
Collect all dues/ Deposit all sponsorship money			Administrative/ Safety Meeting Rules, t-shirt, and Dues Meeting		Possible Food Pantry outreach		Kickoff!
	13	14	15	16	17	18	19
Order Field/ Update Portfolio/ research other portfolios from winning teams/ review rules	Strategy; Pugh Matrix Intro		Strategy; Pugh matrix review; prototype assignments		Prototype review; design freeze 1	Order Parts? 1	
	20	21	22	23	24	25	26
Draft Board/ make a gimkit for rules	CAD start; speech; programing training		CAD & design		CAD & design Design freeze 2	Order parts 2	
	27	28	29	30	Oct 1	Oct 2	Oct 3
Pictures of team together and individual pictures	CAD & design / build subcomponents		CAD & design / build subcomponents		CAD & design / build subcomponents		
	Oct 4	5	6	7	8	9	10
notebook; Board/ comp speech	CAD & design / build/program subcomponents		CAD & design / build/program subcomponents		Building / programing	Get Parts 1	
	11	12	13	14	15	16	17
notebook; comp speech	Building / programing		Building / programing		Building / programing	Get Parts 2	
	18	19	20	21	22	23	24
Finish board notebook; comp speech buttons	Building /auton		Building /auton		Building /auton		
	25	26	27	28	29	30	31
Finish eng notebook	tweeks & training / drive team decisions		tweeks & training / drive team decisions		tweeks & training / drive team final decisions		
	Nov 1	2	3	4	5	6	7
	tweeks & training		tweeks & training		tweeks & training		COMPETE!
	8	9	10	11	12	13	14
Iterate	training		training		training		
	15	16	17	18	19	20	21
Iterate			Iterate		Iterate		COMPETE!
	22	23	24	25	26	27	28
Iterate			Iterate		Iterate		
	29	30	Dec 1	2	3	4	5
Fall over exhausted			Iterate		Iterate		
	6	7	8	9	10	11	12
			Iterate		Iterate		Fall over exhausted

STAY ORGANIZED, DESIGN, ORDER PARTS, BUILD, WRITE, PRACTICE, COMPETE, AND REITERATE

Post Season

January

- Have a team get together to celebrate the season
- Start list of parts that may need to be replaced
- Start Outreach for the next season. **Anything in the 2027 Calendar Year can count towards Outreach for the 27-28 Season.**

February

- Start Recruiting for next season
- Volunteer at Fifth Grade Robotics Round-up
- Start Training new people on CAD, Programming, and Marketing

March -April

- Continue Training
- Outreach
- Take apart two season ago robot
- Continue Outreach make sure to document and photograph events
- Keep up on Portfolio with Outreach
- Participate in Spring events
- Finalize early parts list order
- Place order using 99 H grant funds if you can. (late April-May)

Remember if purchasing through the PCCS school district – the standard school calendar accounts shutdown May 31st.

Summer Purchasing Guidelines go into effect at PCCS after the school year has shut down through return of Administrative Assistant in second week of August.

HELPFUL THINGS TO KEEP IN MIND

- Have a good relationship with your administrative assistant
- Keep your teacher representative in the know
- Don't be afraid to call people and ask the whys?
- Know when you have to say no.
- Eager parents don't always know what goes into the process.
- Most of the highly competitive teams meet all year round.
- Give the team realistic expectations

Your job is to make sure that when competition comes:

Everyone has had enough time to present the best they can during the time constraints they have.

KEEP IN MIND THE AMOUNT OF TIME YOU NEED FOR DESIGN, BUILD, PROGRAMMING, AND DRIVE PRACTICE WHEN PLANNING OUT YOUR TIMELINE.

PLAN FOR PROBLEMS. THEY ARE GOING TO HAPPEN. BE READY TO BE FLEXIBLE.



HELP FROM OUR PCCS COMMUNITY

Lightning Robotics is available on Tuesdays and Thursdays during meeting times and through Slack to help with:

- Programming
- Build
- Portfolio
- 3D Printing
- Cutting Parts
- Troubleshooting
- Getting Ready for Competitions
- Parts
- And more

Resource	Link	What it is good for -
Lighting Robotics FTC Starter Guide	Lightning Robotics - FIRST Team 862 - FTC Startup Guide	Good Jumping point into what to expect
FIRST's website	https://www.firstinspires.org/programs/ftc/	Game Manual, training resources, etc.
FIRST's Facebook Page	https://www.facebook.com/groups/firstroboticsgroup	Help from across the globe
FIRST in Michigan's website	https://firstinmichigan.us/FTC/	Help specific to Michigan
Rev Robotics	https://docs.revrobotics.com/rev-duo	Rev specific help
Game Manual Zero	https://gm0.org/en/latest/	Great resource for many categories
Onshape	https://www.onshape.com/en/	Free CAD program
GitHub	https://github.com/	Fiel Storage for Programming
Infinity Tech	https://www.infinitytechrobotics.com/resources/	CAD classes
Orange alliance	https://theorangealliance.org/	Stats on teams and competition information
FTC Scout	FTCscout.org	Stats on teams