Compass Alliance Pathways: Competition Preparation at a Glance

This guide will help prepare your team to perform at its best on and off the field at a competition throughout the season. It covers how to divide up your team and conquer the many facets of an event, what to pack, and how to prepare your team in the regional and district model.

Part I: "I just bagged my robot, what do I do now?"

1. **Level 1.1: Lists**
    a. Create a thorough travel packing list. It's just as important that you stick to it and check items off as they get loaded.
        i. Sample 1678 2017 Offseason Packing List: https://docs.google.com/spreadsheets/d/1nrjVfcS6CcV4Vg5HkX2-v71j44fDjqhUduiz_eUoz14/edit#gid=0
        ii. Sample 1538 Packing List: http://www.team1538.com/site/resources/What-you-will-need-at-competition-Engineering.pdf
    b. Create a pre-match checklist split up into specific robot mechanisms and run through it before every match.
        i. Sample 1678 2016 Pre-Match Checklist: https://docs.google.com/spreadsheets/d/1QANskko4VNCZWDzLQwDkVyoXlmk1c487Agu5j39nEB0/edit#gid=0
    c. Create a Pre-Event Checklist that is team-wide. Write down every item that needs to get completed before leaving for your event. Highly suggest printing it out or writing it somewhere visible.
    d. Complete your Bill of Materials (BOM)/Cost Accounting Worksheet (CAW) as soon as possible!
        i. See Section 8.4 of the *FIRST Robotics Competition 2018 Game and Season Manual*
2. **Level 1.2: Sub group preparation**
    a. Mechanical
        i. Testing
            1. It is *imperative* that you test your robot as accurately as possible to matchplay.
                a. Regardless if you have field elements set up or if you have a full field in your facility, run full matches to the

best of your ability to gauge what needs more practice and what commonly breaks on the robot.

ii. Extra part prep
    1. At competitions, you have a withholding allowance of 30lbs, so use it!
    2. Predict what may break during matchplay, according to testing. Make many extras of those parts and be prepared to install them.

iii. Extra purchases
    1. For parts that you maybe didn't make in-house, including COTS parts, order extras.

b. Programming
    i. Prepare your drive station laptop
        1. Make sure all updates have been installed! You don't want this laptop to go out of service for a few hours on competition day!
        2. Make sure the drive station code is up to date.
        3. Make sure you have usb adapters, ethernet adapters, ethernet cable (for the practice field), any other serial port or usb attachments.
        4. 4911 tip: zip tie the laptop charger to your drive station, and you'll never forget it.
    ii. Plan for and prepare a backup laptop
        1. Have a student carry a backup laptop constantly and follow the robot. This year, the Technician role can be used for this purpose.
    iii. Make sure you check the game manual for the requirements of your drive station (size requirements, devices, cameras, etc).

c. Awards
    i. Consider any specific awards that you want to focus on
        1. Entrepreneurship - make sure your team understands the business plan and can talk about its content.
        2. Robot awards - have a plan for how to introduce special or specific robot functions into conversation with your judges.
        3. Team Awards - use your pit space to show how your team's outreach impacts you and your community. Make sure each team member knows the fundamentals of your outreach programs.

4. Chairman's - Practice! The presentation team should find a quiet place at the event and practice. All students in your pit, pit area, practice area, and the stands should feel confident talking to judges about the teams impact on the local community, how outreach creates student leadership opportunities, and how the team spreads the FIRST message.

ii. Team 27 Sample practice questions: https://drive.google.com/open?id=1bVQ6oLUS-NuSKUTqLQ96XXRnEEuHn_ZI

d. Scouting
   i. Be sure to check out the pathway on scouting: https://docs.wixstatic.com/ugd/c6b003_1c5ef00d504842a79183061e44bbb25e.pdf
   ii. Determine your scouting platform
      1. Paper scouting
      2. App scouting
      3. Video scouting
   iii. Pre-print any forms beforehand (and make sure you print enough of them!)
   iv. Train your team members who are going to be scouts with the scouting platform and printouts that you will be using.
   v. Set up your data aggregation
      1. Entering data into Excel
      2. Entering data into Tableau
   vi. Gather useful supplies
      1. Clipboards
      2. Pens
      3. Printer (find out how to power the printer!)
      4. Tablets and chargers
      5. Snacks! Water!
   vii. Practice! If you are not competing in early weeks, watch matches online and practice how to scout and gather data.

e. Team organization and logistics
   i. Set a meet place and time
      1. The full team should meet at a specific entrance, parking lot, or location at the start and end of the day to cover any last minute announcements and plans.

ii. Establish travel team roles
    1. Larger teams may have more members who scout matches, cheer for theirs and other teams, and be prepared as alternates and assistants to the lead roles. Smaller teams may have single people with multiple roles.
    2. What is a comfortable number of team members to support your robot and team?
        a. A general competition structure for a ~30 member team may be:
            i. Drive Team (4-8 students for primary and back-up)
            ii. Pit Crew (2-4 students)
            iii. Safety Captain/Pit Boss (1 student)
            iv. Storefront/Greeters (3-6 students, contains Chairman's presenters)
            v. Scouts (6-12 students)
            vi. Scouting Lead (1 student)
            vii. Strategy (2-4 students)
    3. Pit roles from 1678 (may also be combined with drive team roles):
        a. 1 Pit Electrician
        b. 2 Pit Mechanics
        c. 1 Pit Programming
    4. How Team 1538 The Holy Cows suggest organizing competition roles: http://www.team1538.com/site/resources/Competition-Jobs.pdf
    5. How Team 254 The Cheesy Poofs select their drivers: https://www.team254.com/documents/driverselection/

Part 2: The Competition

1. **Level 2.1: Preparing for the Event**
    a. Competition Forms
        i. It's imperative to make sure your team has all it's necessary forms for competition. This includes:
            1. Team Roster
            2. Cost Accounting Worksheet (COW)

3. Robot Lockup Form
4. District Consent and Release Forms (if you are a District team)

ii. Comprehensive explanation of these forms can be found here: https://docs.wixstatic.com/ugd/c6b003_95e0c07d1087446084228 40b8f0c433d.pdf

2. Level 2.2: Getting to the Event

a. Pit Setup
   i. Your pit is a 10ft x 10ft (or 8ft x 8ft at certain events) area located next to all the other teams at the competition.
   ii. It is your home during competition, keep it clean.
   iii. Stores robot, tools, battery charge station
   iv. Showcase outreach and community involvement
   v. Remember that judges and other teams will look for you at your pit.
   vi. For load-in/pit setup, events may limit the number of team members allowed in the pit area.
   vii. Have a plan for the location of tool chests/banners/branding.
   viii. Quick setup means you can start inspection sooner.

b. Inspection
   i. Lead mechanic, electrical, software, and pit crew should unpack and prepare the robot
   ii. Add any new parts from holdback
   iii. Make any updates/modifications you've learned if you have been using a practice robot before competition
   iv. Full competence checks for all systems: mechanical, electrical, pneumatic
   v. Download and test the latest software code
   vi. Teams should be familiar with the inspection checklist
      1. Inspection Checklist: https://firstfrc.blob.core.windows.net/frc2018/Manual/2018FRCInspectionChecklist.pdf
   vii. Inspection generally starts with weighing the robot and bumpers separately at a specified location in the pit area.
   viii. After weigh-in, an inspector will come to your pit to complete the inspection. Don't be afraid to express your team's wish to get inspected and push for it.

c. Pit Scouting

i. Gather as much information as possible from other teams at the competition
ii. Visit every pit, start noting down robot features:
    1. Drivetrain
    2. Active/passive mechanisms
    3. Available scoring capabilities
    4. Ask about autonomous capabilities
iii. Sample pit scouting document: https://drive.google.com/drive/folders/1nXqgFouRnSwgBPIgnjtzt2AgngBgpEZ2

3. **Level 2.3: During the Event**
    a. Safety
        i. All team members should adhere to proper safety standards
        ii. Keep the number of team members in the pits to a minimum
        iii. All team members, family, guests are required to wear safety glasses in the pit area
        iv. When moving your robot, have a drive team member walk in front to ensure the path is clear.
        v. Don't be afraid to ask questions, especially regarding safety.
            1. Think before you act. If you are ever unsure about the safety of a situation, it is in the best interest of you, your team members, and your team to ask for help or advice.
    b. Use your Pre-Match Checklist!
        i. Teams want their robot to run, and run well every single match. Depending on the event, there will be differing amounts of time between matches. During this time, teams should have a list of items to check on the robot, to ensure the robot will perform at its utmost for the next match. Be as thorough as possible, it will pay off!
        ii. Sample 1678 2016 Pre-Match Checklist
            1. https://docs.google.com/spreadsheets/d/1QANskko4VNCZWDzLQwDkVyoXlmk1c487Agu5j39nEB0/edit#gid=0
    c. Alliance strategy talks
        i. Before matches take time to meet with your alliance drive teams, and plan out the match
        ii. Use scouting data to determine the best baseline for what offense and defense should be played, and who on your alliance will play these roles

iii. Use this time to plan robot routes, making sure that robots will have clear paths and won't block each other
iv. Identify if you are able to, and the optimal path to scoring potential RP

d. Scouting
   i. Stand scouting - See our scouting pathway here: https://docs.wixstatic.com/ugd/c6b003_1c5ef00d504842a79183061e44bbb25e.pdf
   ii. Pitching your team
      1. Have a team liaison constantly talking to teams that you would like to play with in elimination rounds.
      2. Ask teams what roles they need to have the best chance at winning, and show how your team can fill that role.
      3. Be honest and open, these teams will be scouting you, so they will have data about your capabilities and offensive/defensive power.

e. Media
   i. Promote your team throughout competition!
   ii. Give updates via Facebook, Twitter, Instagram, Snapchat, or any additional platform or any combination
   iii. If there is an event livestream, be sure to share it with your followers!
   iv. Take lots of photos and video! You may not even look at it during the event, but it will be great for future years.

f. Talking to judges/understanding awards
   i. Smile, be friendly, show your energy!
   ii. Make sure you make it personal - talk about your experience. It will resonate with them much more than just facts.
   iii. Speak clearly and loudly, it can be very loud in the pits.
   iv. If you don't understand the question, it is OK to ask for clarification.
   v. Be sure to answer the question, don't get lost on a tangent.
   vi. Have visuals accessible to show as you talk.
      1. May include sample binders, photos, press releases, even just gesturing to the robot.
   vii. Don't be afraid to have a conversation with the judges
      1. Ask them questions
      2. Thank them for volunteering

viii. FIRST Best Practices: https://www.firstinspires.org/sites/default/files/uploads/resource_library/frc/game-and-season-info/awards/2018/2018-best-practices-for-teams.pdf
ix. 4064 Slides: https://www.slideshare.net/cpolack/a-rookies-perspective-frc-judging-101

g. Elimination round preparation
   i. Congratulate yourselves!
   ii. Run through all of your robot checks once again, be extra thorough.
      1. Run through a full mechanical check (look for missing parts, loose components, etc.)
      2. Do a full systems check: check all mechanisms, test drivetrain maneuverability, autonomous, etc.
   iii. During eliminations, teams are allowed 2 additional pit crew members with one tool chest (or similar) in staging areas close to the field.
      1. Assign two team member to be the eliminations pit crew, and have them prepare any required tools.
         a. Refer to your packing list throughout the competition so everything gets used and put back in the right spot.
   iv. Your drive team should meet with your new alliance team member drive teams and discuss strategy for the next rounds.
   v. If possible, have team members talk through your robot with other teams, and have them talk through their robots in depth. It is possible that for a specific role or strategy, parts can be quickly fabbed or modified to enhance a robots ability.
   vi. Drive team members: Maintain the same mindset and preparation during elimination matches. Yes, these are the finals and you have to compete at your highest level, but make sure you don't over-excite or stress yourselves and make mistakes.
      1. Remember to breathe. Breathe and relax and smile.

h. Other miscellaneous tips
   i. Ensure all students eat lunch and drink water throughout the day. These are very fun competition days, but there can be a lot of work

to do and the days will progress very quickly. During the lunch break, make sure all students are given time to rest and eat.

ii. NEMO First Competition Tips: http://www.firstnemo.org/PDF/first_competition_tips.pdf

4. **Level 2.4: After the Event**
    a. Retrospective Meeting
        i. Gather your team together and reflect on how the overall competition went for your team.
        ii. Answer the following questions:
            1. What went well at the competition?
            2. What did not go well? (Was it in your control?)
            3. What changes can you make to improve your next competition?
        iii. This is one of the most crucial steps for growing as a team.
        iv. Do not play a blame game or point fingers. The outcome of this meeting should be a goal of improvement; 1%, 2%, or 10% better, enabling the team to move forward as a whole.
            1. This can be a split goal, for example 10% better at packing your pit, 10% better scouting data, or 10% more talking to other teams!
    b. Preparing for the Next Event
        i. You should have your retrospective notes, and now is the time to execute.
        ii. Keep your travel gear staged, so that it can be easily packed up once more.
        iii. At your workshop, get as much drive practice as possible
        iv. Continue watching other events in your region/district, as well as internationally. Use what you learn from others to improve your strategy.
            1. The Blue Alliance: https://www.thebluealliance.com/

Part 3: Specific Event Types:

1. **Level 3.1: Specifics for Districts**
    a. Unbag Time
        i. District events are 2-day events instead of 3-day Regionals. To make up for the lost practice day, District teams are allowed 6

hours of unbag time in the week prior to each District event (typically NOT before District or World Championships).
   ii. You can use the entire 6 hours at once, or break it up, but each unbag period must be at least 2 hours long.
   iii. Withholding rules still apply. If you held aside 30 pounds in spare parts and you add some or all of them during your first unbag period, you cannot add another 30 pounds during that same week.
b. Load-In
   i. Load-in and setup are typically the night before the event starts (e.g. Thursday evening for a Friday/Saturday event). Set up your pit and get your robot through inspection as soon as possible.
   ii. If the field is built, you may get in a practice match or two. If the field has not been finished, any team members without jobs can usually find work to help with field setup.

2. **Level 3.2: Specifics for Regionals**
   a. Overall Competition Length
      i. Regional competitions are 3-4 days long.
   b. Regionals can vary a lot, so be sure to read through any and all emails that come from the Regional Planning Committee and Regional Director.
   c. During your given practice day, get inspected and get moving as soon as possible. The more experience you have with your controls and the given field, the better.
   d. Prepping for your unbag time will be very important!
      i. Prior to practice day, you may find it helpful to write out a step-by-step document (often broken down by time) and print it out for replacing or updating your robot.
      ii. As soon as pits opens on practice day (prior to unbag time), prepare tools/components and make sure everyone in the pit understands what needs to happen with the robot and the timeframe for each action.

Part 4: We qualified for World Championships!

1. Stay tuned for a future pathway on preparing for the World Championships!