



Popcorn Premiere

2025 GAME MANUAL

Revisions

Revision	Description	Date
1.0.0	Initial Game Release	2025-10-07
<i>Revision changes will have text highlighted in Green</i>		

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1 INTRODUCTION

1.1 PROGRAM HISTORY

This program was created in the fall of 2019 as internal training for students on Team 3100. The simulated FRC season during their fall Pre-Season better developed the young team, specifically with a focus on improving the student experience and their competitive results. During that first year, the team saw great improvements in individual student's abilities and confidence moving into the Build Season.

Prior to the 2022 FRC season, **MinneTrials** was expanded to provide this valuable training resource to multiple teams within the Twin Cities metro as a pilot program, with the goal to expand throughout the larger FUM region within a 5-year span.

Year	Game	Location	Rules
2021	PARCEL PANIC	Two Rivers High School	PARCEL PANIC Rules
2022	ZONED OUT	Hopkins Tanglen Elementary School	ZONED OUT Rules
2023	CORN CONUNDRUM	Hopkins Tanglen Elementary School	CORN CONUNDRUM Rules
2024	BEACH BASH	Hopkins Tanglen Elementary School	BEACH BASH Rules

1.2 GOALS

The goal of the program is simple. New students learn new skills, returning students expand their skills, and veteran students refine their skills by teaching the next generation of members. This allows students from all experience levels to gain valuable knowledge and improve prior to their next FRC Build Season. This program allows students to learn their skills "just in time" instead of learning skills "just in case".

MinneTrials was developed to remedy the disconnects and shortcomings between a team's fall training systems and the progression of FRC Build Season. For many teams, training does not translate effectively into useful Build Season skills. This program helps with skills such as brainstorming, designing, fabricating, and controlling a robot from start to finish. **MinneTrials** aims to forge a direct relationship between fall training and build season by creating a platform that mimics the Build and Competition Season, but with an emphasis on taking time to explain key topics along the way.

1.3 OUTCOMES & DELIVERABLES

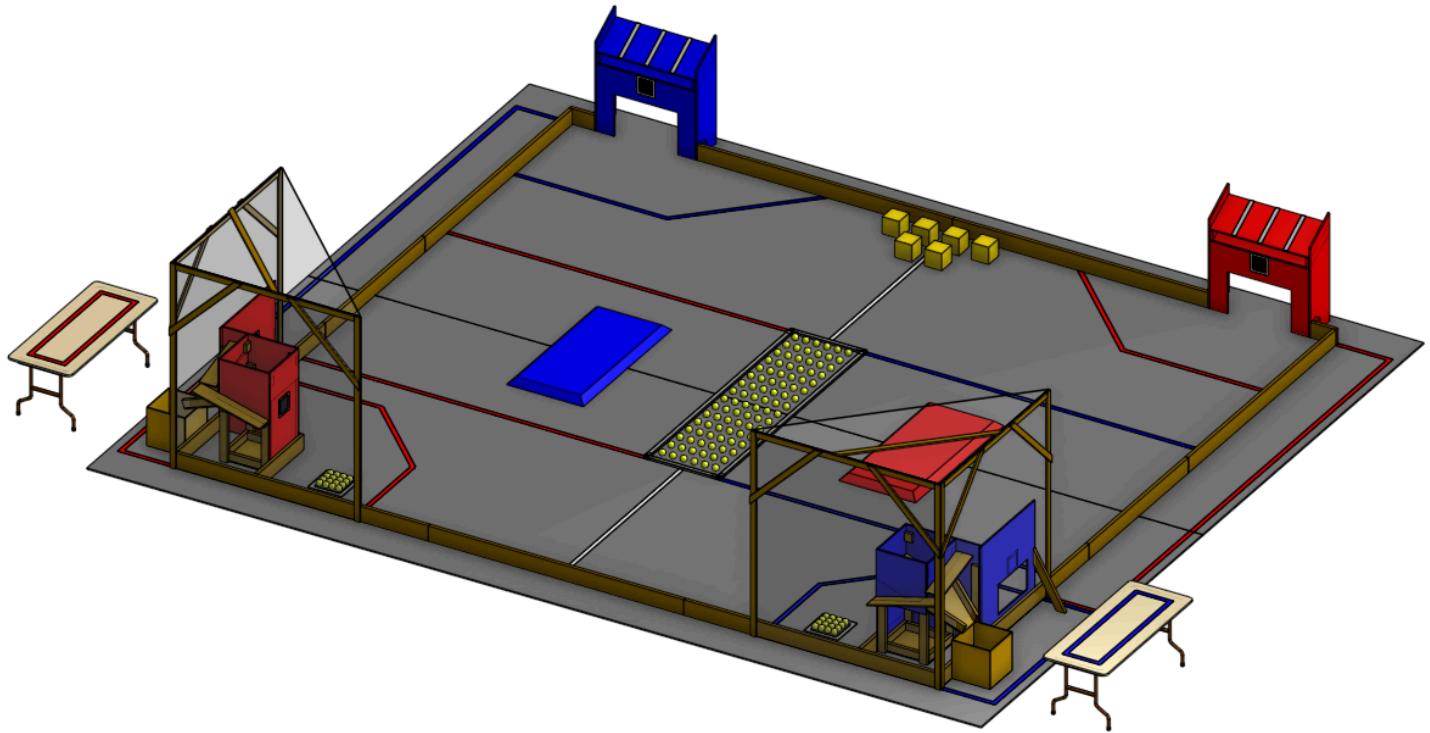
The goal of this program is to provide direct comparisons between how we train in the fall to the skills that need to be applied during the build season. Direct deliverables and outcomes of this program will coalesce in a multi-team tournament taking place prior to FRC Kick-Off.

On a robot level, the goal is for each team to create a robot that challenges their collective skills and allows them to learn new techniques. The ROBOTS that are competing at the event do not have to be FRC-level of robot

complexity. As long as the robot can work through operator control, it can be as complex or primitive as each team is comfortable with. For example, the game-specific mechanism can be made out of wood with a simple mechanism to play the game. The games are intentionally designed to allow for different levels of robot complexity to be effective and still have opportunities to succeed.

The long term goal of the program overall is to grow and invite more teams in the Upper Midwest region, and open up opportunities for other regions to host their own competition weekends through [**MinneTrials**](#). Teams should utilize the program to train their students their own way, but still come together to compete and network with other teams, much like what the [OCCRA](#) accomplishes in Michigan and [BunnyBots](#) in PNW/CHS regions in FIRST.

2 2025 GAME OVERVIEW



In **Popcorn Premiere**, two ALLIANCES of two (2) ROBOTS each will compete on a flat, carpeted 27' x 30' FIELD, containing two (2) POPPERS, two (2) STOREROOMS, two (2) SEATS, a SNACK BAR, and various ZONES. Additionally, there are two (2) CONCESSION COUNTERS just outside the field of play, where HUMAN PLAYERS complete the last step of scoring. The objective of **Popcorn Premiere** is for robots to deliver POPCORN and BUTTER to the POPPER and then TAKE THEIR SEATS before time expires. The ALLIANCE with the most points by the end of the two (2) minute and thirty (30) second MATCH wins the GAME.

AUTONOMOUS

During the first fifteen (15) seconds of the MATCH, ROBOTS will follow pre-programmed instructions. HUMAN PLAYERS may not interact with GAME PIECES. During this time, ALLIANCES score points by leaving their STARTING ZONE and delivering POPCORN and BUTTER to their POPPER. A RANKING POINT can be earned if both robots successfully leave their STARTING ZONE, and score at least one GAME PIECE between them. ROBOTS may not cross over the STANCHION LINE or enter the SNACK BAR.

TELE-OPERATED PERIOD (MID-MATCH)

During the time immediately after AUTONOMOUS and for the remaining two (2) minutes and fifteen (15) seconds of the MATCH, ROBOTS are controlled by their DRIVE TEAMS. During this time, ROBOTS may continue to score GAME PIECES and HUMAN PLAYERS may interact with GAME PIECES. A RANKING POINT can be earned by scoring either 120 POPCORN or 7 BUTTER during the MATCH.

END-GAME PERIOD

The final thirty (30) seconds of the MATCH are a continuation of the TELE-OPERATED PERIOD, but audio cues are given so TEAMS know that the MATCH is coming to a close, and it is time to TAKE THEIR SEATS! TEAMS can score POINTS by having their ROBOT partially or completely supported by their ALLIANCE specific SEATS when the MATCH concludes. A RANKING POINT will be given for having both ROBOTS completely supported by their ALLIANCE specific SEATS five (5) seconds after the end of the MATCH.

3 ARENA

The ARENA will include all elements of the GAME infrastructure that are required to play **Popcorn Premiere**: the FIELD, the GAME PIECES, and all equipment required for the FIELD control, ROBOT control, and scorekeeping.

3.1 FIELD

The FIELD for **Popcorn Premiere** is a roughly 27-feet wide by 30-feet long, carpeted area bound by and including the Guardrails. The FIELD is populated by the preset POPCORN and BUTTER prior to the start of a MATCH. The two (2) STOREROOMS are against the audience side guardrail, near the corner adjacent to their matching driver station. The POPPERS in the corners of the FIELD on the scoring table side diagonally opposite the matching STOREROOMS. Arranged across the center of the field are the SNACK BAR, in the center of the FIELD and the two SEATS platforms, situated between the SNACK BAR and their matching driver stations.

The surface of the FIELD is low pile carpet, matching what is traditionally used in FRC games. The edge of the carpet may be secured to the venue floor using tape to prevent the carpet from coming up or shifting throughout the event.

The Guardrails are made of primarily 2-inch by 8-inch lumber, with some additional support to aid in the structure and stability of the walls. There are Gates in the Guardrails at yet to be determined locations.

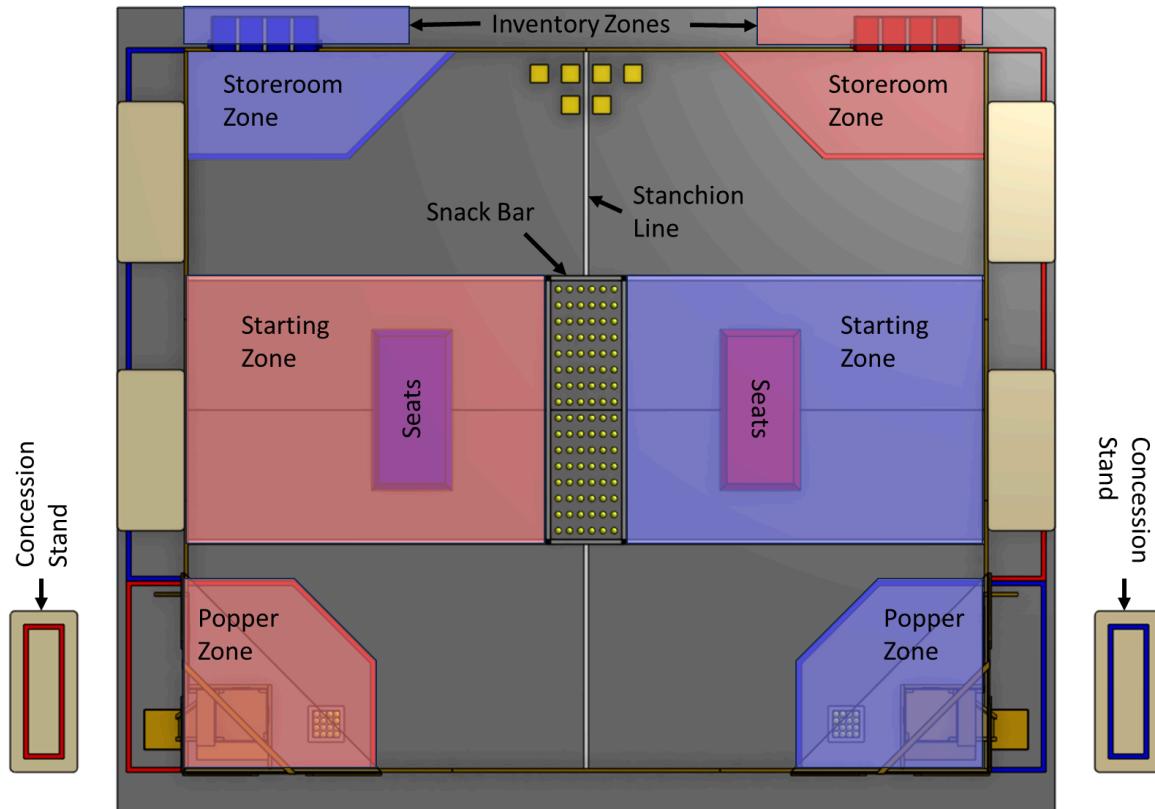


Figure 3-2: FIELD Zones & Lines

3.2 ZONES & MARKINGS

FIELD ZONES and markings of consequence are described below. Unless otherwise specified, the tape used to mark lines and ZONES throughout the FIELD is 2-inch Gaffers Tape of a denoted color.

3.2.1 SNACK BAR

The SNACK BAR is a rectangular region approximately 36-inches by 120-inches bordered by a 1-inch by 2-inch barrier. The SNACK BAR is centered on the FIELD and oriented with its long side parallel to the ALLIANCE STATION walls. Within the SNACK BAR, the MATCH will begin with 96 POPCORN randomly positioned.

3.2.2 POPPER ZONE

The POPPER ZONE is the area around the POPPER where POPCORN and BUTTER may be launched. The POPPER ZONE contains the MELTER and KETTLE and includes the POPCORN STARTING BOX. The POPPER ZONE is an 82-inch square with a corner removed approximately 47-inches from each field border and bounded by the field borders and ALLIANCE colored lines. Additionally, vertical netting extends approximately 89 inches from the corner, along the field border, in each direction. The vertical netting is capped with a horizontal triangle of netting that is 96 inches above the carpet.

3.2.3 POPCORN STARTING BOX

The POPCORN STARTING BOX is a 16-inch square contained within each POPPER ZONE near the scoring table side edge of the FIELD. Sixteen (16) POPCORN will be placed within each POPCORN STARTING BOX at the beginning of each MATCH. The border of the POPCORN STARTING BOX may have some slight vertical geometry to help contain POPCORN during MATCH SETUP.

3.2.4 STANCHION LINE

The STANCHION LINE bisects the field except where it would pass through the SNACK BAR.

3.2.5 STOREROOM ZONE

The STOREROOM ZONE is a trapezoidal area bounded by the field wall and ALLIANCE colored lines extending 48-inches from the STOREROOM and between 72-inches and 120-inches wide.

3.2.6 STARTING ZONES

The two (2) STARTING ZONES are bounded by the field wall, the SNACKBAR, and two lines perpendicular to the STANCHION LINE, 120-inches apart, and centered on the SNACK BAR. Each STARTING ZONE is either red or blue denoted by the bounding tape.

3.2.7 SAFE ZONES

The STOREROOM and POPPER ZONES are SAFE ZONES where ROBOTS are not allowed to make contact with opponent ROBOTS.

3.2.8 INVENTORY ZONES

The INVENTORY ZONE is an area outside of the field next to the STOREROOM ZONE where a HUMAN PLAYER is positioned and some POPCORN and BUTTER begin the match.

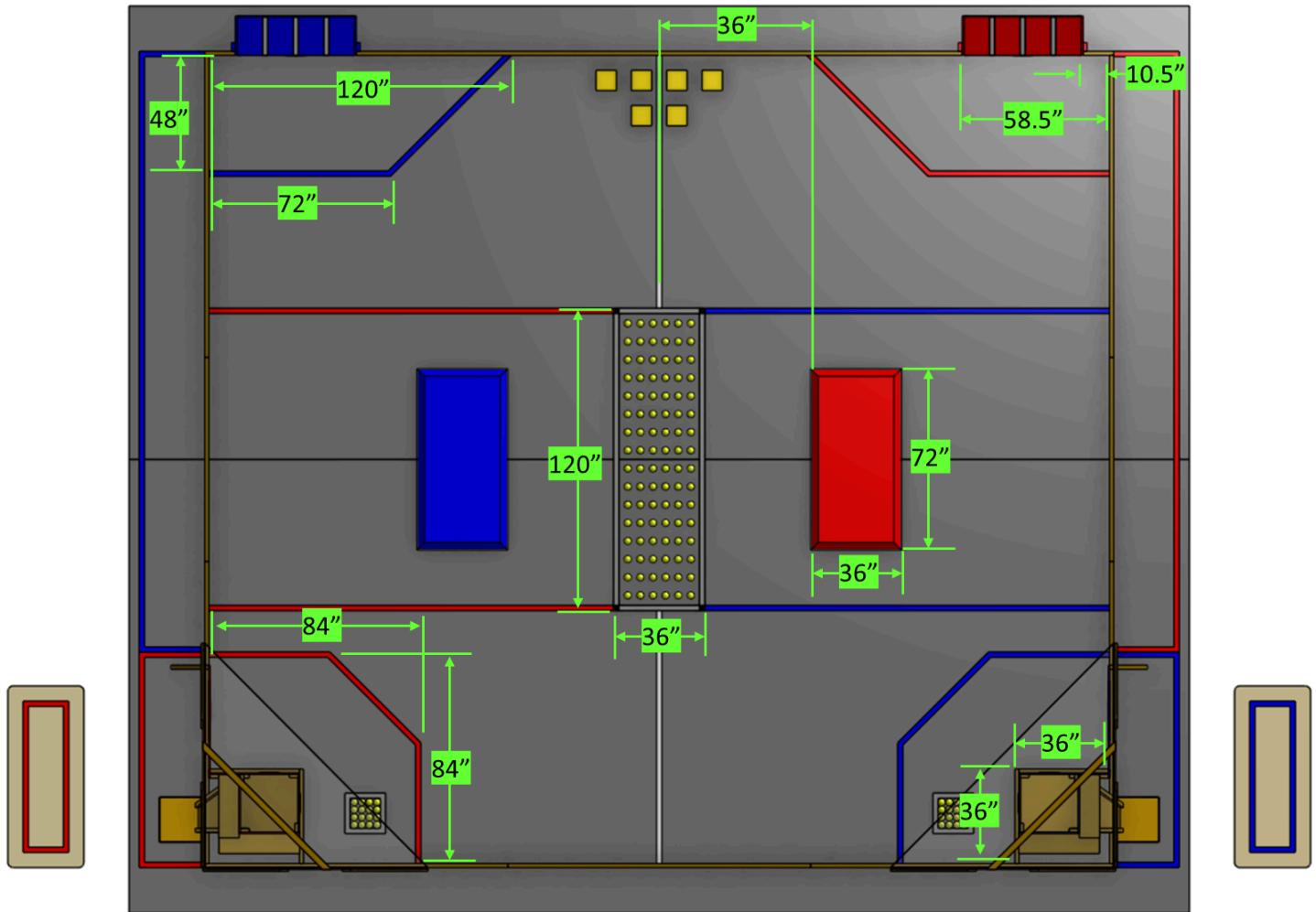


Figure 3-3: Assorted FIELD Dimensions

3.3 ALLIANCE STATION

An ALLIANCE STATION exists on either end of the FIELD for either ALLIANCE that contains two (2) DRIVER STATIONS that will contain the two (2) DRIVE TEAMS, each of which will have two (2) DRIVERS and one (1) or two (2) COACH(es). During the MATCH, all members of each DRIVE TEAM must stay within the general ZONE, although there may not be tape lines to denote each ZONE.

3.4 STOREROOMS

Each ALLIANCE has one (1) STOREROOM located on the audience side of the FIELD, near their driver station. The STOREROOM is equivalent to the TRANSFER STATION used in previous years. The STOREROOM is where a HUMAN PLAYER may receive GAME PIECES from a ROBOT or introduce GAME PIECES onto the FIELD. The LOWER

OPENING allows transfer of GAME PIECES from the ROBOT to the HUMAN PLAYER, and the RETURN RAMPS allow transfer of GAME PIECES from the HUMAN PLAYER to a ROBOT.

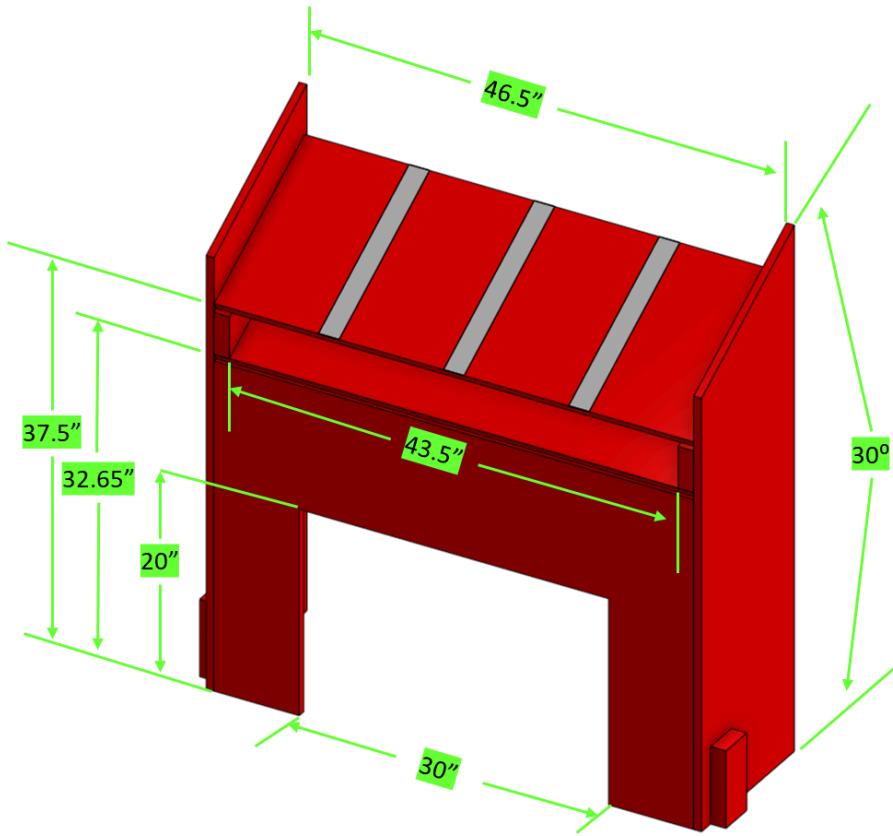


Figure 3-4: STOREROOM

The LOWER OPENING is a 30-inch wide by 20-inch tall opening at the floor of the FIELD. GAME PIECES can exit the FIELD from this OPENING.

The RETURN RAMP is a 45-inch wide area at a 30-degree angle from horizontal with an exit height of about 37.5-inches from the floor, and contains a set of White Gaffer Tape lines to help with alignment. This is the only way GAME PIECES can be returned onto the FIELD from the STOREROOM.

Each INVENTORY ZONE starts a MATCH with ninety six (96) POPCORN and five (5) BUTTER.

3.5 POPPER

Each ALLIANCE has one (1) POPPER located on the scoring side of the FIELD, near their driver station. The POPPER consists of two scoring components, the MELTER and the KETTLE.

3.5.1 MELTER

The MELTER is a 14-inch tall, 24-inch wide opening in the FIELD wall. Its lower edge is approximately 9.25-inches from the ground and its nearest edge is 48-inches from the scoring side FIELD wall. ROBOTS deliver BUTTER through the MELTER to the HUMAN PLAYER for scoring.

3.5.2 KETTLE

The KETTLE is a rectangular structure 24-inches on each side and 48-inches tall. The KETTLE is located in the corner of the FIELD set 12-inches away from each wall. ROBOTS deliver POPCORN through the approximately 20-inch square, horizontal opening in the top of the KETTLE to the HUMAN PLAYER for scoring. The KETTLE includes a funnel to direct POPCORN from the top opening towards the HUMAN PLAYER and netting to minimize POPCORN leaving the FIELD and funnel it back into play.

3.5.3 CONCESSION STAND

The CONCESSION STAND is a rectangular table where a HUMAN PLAYER scores POPCORN BUCKETS and BUTTER.

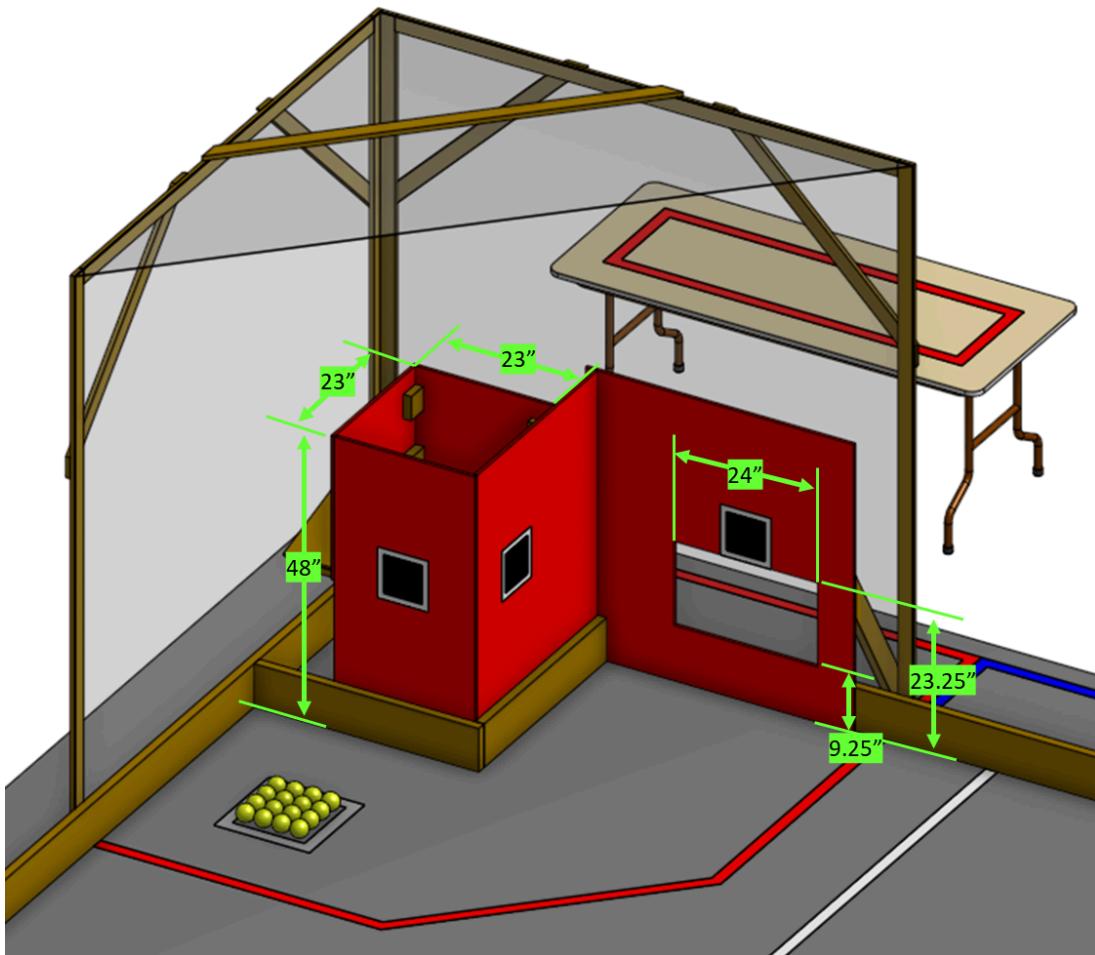


Figure 3-5: POPPER ZONE, MELTER, KETTLE, and CONCESSION STAND

3.6 SEATS

Each ALLIANCE has one (1) platform (the SEATS) located approximately 82.5- inches from the ALLIANCE STATION, centered along the width of the FIELD. The SEATS is a 3-inch tall plywood platform with an approximately 30-inch by 66-inch top surface and 45-degree ramps on all 4 edges.

3.7 AprilTag Distribution

AprilTags will be distributed around the FIELD, as seen in Figure 3-5 below. Note that these are the same AprilTag IDs used for 2025 FRC Season (36h11 family). Below is the specific distribution of each tag for our specific game. All the numbers below match the numbering of the document.

3.7.1 POPPER

Each field facing side of the POPPER has a unique Tag. The top of the Tag is 31.75-inches above the ground.

3.7.2 STOREROOM

Each STOREROOM has a unique Tag, centered on the front face of the station with the top of the Tag 31.75-inches off the ground.

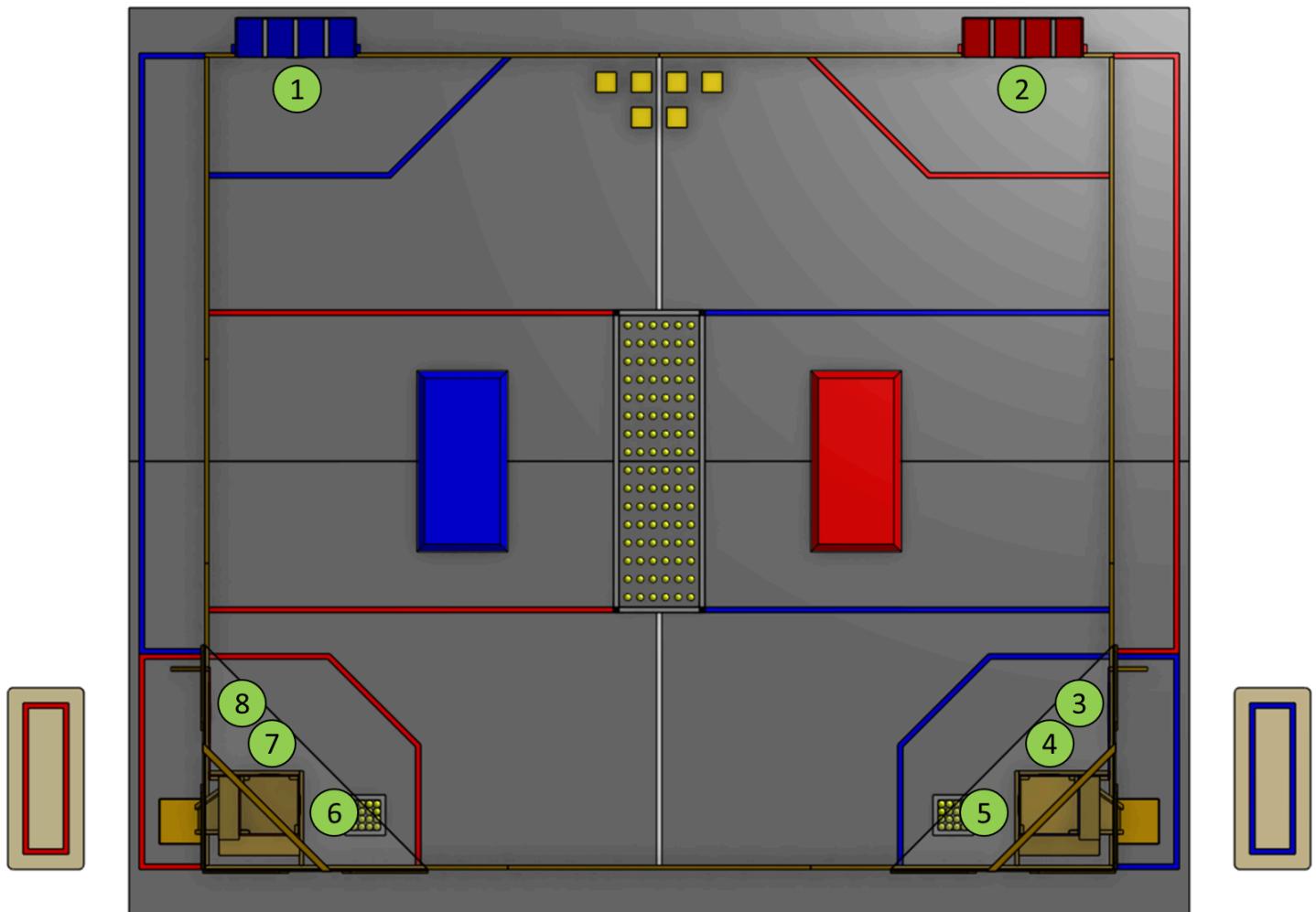


Figure 3-6: AprilTag Distribution

3.8 GAME PIECES

There are two (2) types of GAME PIECES in **Popcorn Premiere**: POPCORN and BUTTER. Each ALLIANCE starts the match with 8 POPCORN pre-scored in the POPPER.

Table 3-1: GAME PIECE Locations

Starting Location	POPCORN	BUTTER
Preloaded in ROBOTS*	Up to 16 per ROBOT	Up to 1 per ROBOT
Each INVENTORY ZONE	96	5
SNACK BAR	96	0
Pre-scored in each POPPER	8	0
On the Field in each POPPER ZONE	16	0
On the Field between the STOREROOMs	0	6
Total	400	20

*Any GAME PIECES that are not preloaded by a TEAM shall go to that ALLIANCE's INVENTORY ZONE.

3.8.1 POPCORN

Each POPCORN is a used tennis ball, approximately 2.6-inches in diameter. Used tennis balls are expected to have variation in color, texture, and firmness.

3.8.2 BUTTER

Each BUTTER is an 8-inch foam cube. Foam cubes may experience wear during matches.

3.8.3 POPCORN BUCKET

Each POPCORN BUCKET can hold 16 POPCORN and 1 BUTTER.



Figure 3-8: POPCORN BUCKET, POPCORN, and BUTTER

4 MATCH PLAY

4.1 SETUP

During each **Popcorn Premiere** MATCH, two (2) ALLIANCES of two (2) TEAMS each play MATCHES, set up and executed per the details described below.

4.1.1 GAME PIECES

POPCORN and BUTTER are staged prior to the MATCH as listed in 3.8

4.1.2 ROBOTS

TEAMS stage their ROBOT fully contained in a corresponding ALLIANCE STARTING ZONE.

4.1.3 HUMANS

DRIVERS, COACHES, and HUMAN PLAYERS must stay within their ALLIANCE ZONES (as described in Table 4-3) throughout the pre-MATCH and MATCH process, and may enter the FIELD after a MATCH once given permission by FIELD STAFF.

4.2 AUTONOMOUS PERIOD

The AUTONOMOUS PERIOD is a fifteen (15) second PERIOD at the start of each MATCH, during which ROBOTS operate only on pre-programmed instructions. During this PERIOD, ROBOTS work to score POPCORN and BUTTER into their ALLIANCE's POPPER. ROBOTS also score 5 points by completely leaving their STARTING ZONE. POPCORN and BUTTER scored during the AUTONOMOUS PERIOD count towards the POP OFF and MORE BUTTER, MORE BETTER bonuses respectively. ROBOTS may not enter the SNACK BAR or leave their half of the FIELD (bounded the STANCHION LINE).

At the end of the AUTONOMOUS PERIOD, the MATCH will be paused for about five (5) seconds to give time for the HUMAN PLAYER to finish placing scored POPCORN and BUTTER on the CONCESSION COUNTER and in to correctly input the MATCH score.

4.3 TELE-OPERATED PERIOD

The TELE-OPERATED PERIOD accounts for the remainder of the MATCH and begins once the FIELD has been given the all-clear after the end of the AUTONOMOUS PERIOD and will begin after another countdown. During this time, ALLIANCES will continue to score POPCORN in the KETTLE and BUTTER in the MELTER.

4.4 END GAME PERIOD

The END GAME notification sound will be played when there are thirty (30) seconds left in the TELE-OPERATED PERIOD. This sound is to help notify TEAMS that the MATCH is coming to an end to allow them time to TAKE THEIR SEATS by positioning themselves partially or completely on their ALLIANCE specific SEATS. The last ten (10) seconds of the MATCH will have countdown audio queues until the MATCH ends.

Five (5) seconds after the MATCH ends, ROBOTS are each awarded 15 points for being fully supported by their ALLIANCE specific SEATS, or 5 points for being partially supported. An ALLIANCE can gain a RANKING POINT if they end the MATCH with both of their ROBOTS completely supported by their SEATS. Additionally, during the fifteen (15) seconds immediately after the match, the HUMAN PLAYER at the CONCESSION STAND may continue to

arrange and score any POPCORN and BUTTER that was launched before the end of the MATCH and successfully entered the KETTLE or MELTER.

Once the MATCH has ended, the scores will be updated and calculated to reveal the winner of the MATCH.

4.5 SCORING

An ALLIANCE is awarded for accomplishing various actions throughout the course of a MATCH. They can also be awarded RANKING POINTS by accomplishing other tasks during the match related to scoring points.

Table 4-1: MATCH Scoring Opportunities

Award	Awarded For...	AUTON	TELE-OP	RANKING POINTS
Early Bird Special	Each ROBOT that completely leaves their ALLIANCE'S STARTING ZONES	5 pts	-	-
Matinee Bonus	Awarded if both ROBOTS receive the Early Bird Special and at least 1 POPCORN passes through the KETTLE or BUTTER passes through the MELTER during AUTO.	-	-	1
POPCORN Points	Each POPCORN that passes through the KETTLE, is placed in a POPCORN BUCKET, and delivered to the CONCESSION COUNTER.	1 pt. per 2	1 pt. per 2	-
BUTTER Points	Each BUTTER that passes through the MELTER and is delivered to the CONCESSION COUNTER.	6 pts	6 pts	-
COMBO BUCKET Bonus	Each complete COMBO BUCKET, containing 16 scored POPCORN and 1 scored BUTTER, delivered to the CONCESSION COUNTER.	30 pts	20 pts	-
Pop Off Bonus	Awarded for scoring 120+ POPCORN throughout the match. An alliance cannot receive the RP from both this and More Butter, More Better.	-	-	1
More Butter, More Better Bonus	Awarded for Scoring 7+ BUTTER throughout the match. An alliance cannot receive the RP from both this and Pop Off.	-	-	
Take Your Seats	Each ROBOT fully supported by the SEATS at the end of the MATCH.	-	15 pts	-
Missed The Previews	Each ROBOT partially supported by the SEATS at the end of the MATCH.	-	5 pts	-
Everyone Seated	Awarded if both ROBOTS on an ALLIANCE are fully supported by the SEATS at the end of the MATCH.	-	-	1
Tie	Completing a MATCH with equal MATCH Points to your opponent.	-	-	1
Win	Completing a MATCH with more MATCH Points than your opponent.	-	-	3

4.5.1 LIVE MATCH SCORING

MATCHES in **Popcorn Premiere** have Live Scoring, where Scorekeepers will be updating scored GAME PIECES as the MATCH progresses. The display screens will be shared at a later date.

4.6 RULE VIOLATIONS

Upon a rule violation, one or more of the penalties listed in Sections 5 and 6 below will be assessed. The Table below is a summary for convenience only. See Sections 5 and 6 for full details. Note: In the event of mismatch, the penalty will be assigned as described in Sections 5 and 6.

Table 4-2: Rule Violation Summary Chart for reference only

PENALTY	Example Violations
+5 Pts	<ul style="list-style-type: none">- Hands on controls during AUTON- HUMAN PLAYERS introducing GAME PIECES during AUTON- ROBOT crossing the STANCHION LINE or entering SNACK BAR during AUTON- Improper use of GAME PIECES to ease/amplify challenges with FIELD elements- Intentionally removing a GAME PIECE from the FIELD of play improperly- Expanding beyond overall size restrictions- Pinning longer than 3 seconds- Contact inside another ROBOT that does not result in inhibited ROBOT function- COACH violates "hands-off" ROBOT controls- Improper removal or return of GAME PIECES in/out of the FIELD (wrong slot, throwing, etc)- Launching GAME PIECES outside of the POPPER ZONE- Entering an OPPONENT POPPER ZONE
+10 Pts	<ul style="list-style-type: none">- ROBOT crossing the STANCHION LINE or entering SNACK BAR during AUTON and contacting GAME PIECES or OPPONENT ROBOTS- Possession of too many GAME PIECES- Blocking STOREROOMS, disallowing other ROBOTS to move GAME PIECES into- Being taller than 30-inches- Two (2) ROBOTS on same ALLIANCE trapping opposing ROBOT (additive for continued action)- Contact inside another ROBOT that causes inhibiting damage to opposing ROBOT'S function- Contacting opposing ROBOT inside opposing ROBOT'S SAFE ZONE or SEATS
+25 Pts	<ul style="list-style-type: none">- Safety violation penalties
YELLOW CARD	Issued for the egregious ROBOT or TEAM member behavior or rule violations. A subsequent YELLOW CARD within the same Tournament phase will lead to a RED CARD.
RED CARD	Issued for egregious ROBOT or TEAM member behavior or rule violations which result in a TEAM being DISQUALIFIED for the MATCH.

4.7 DRIVE TEAM

A DRIVE TEAM is a set of up to five (5) STUDENT members from the same TEAM responsible for TEAM performance for a specific MATCH. There are three (3) specific roles on a DRIVE TEAM which ALLIANCES can use to assist ROBOTS in **Popcorn Premiere**. In each MATCH, each ALLIANCE must designate one of their HUMAN PLAYERS to be in the STOREROOM and one at the CONCESSION COUNTER. If a team is unable to supply a HUMAN PLAYER, the other team on the ALLIANCE may choose a student to fill the role.

Table 4-3 DRIVE TEAM Member Roles

ROLE	DESCRIPTION	MAX	Designated ZONE
DRIVER	Controls the ROBOT	2	ALLIANCE STATION
DRIVE COACH	A guide or advisor; A secondary coach can be present during QUALIFICATION MATCHES to help train other members during matches if desired by a team	1 (2 in QUALIFICATION MATCHES)	ALLIANCE STATION
HUMAN PLAYER: STOREROOM	Aids in setup of the ROBOT prior to a MATCH; Can introduce GAME PIECES into their ROBOT or onto the FIELD and retrieve GAME PIECES passed out of STOREROOM	1 per ALLIANCE	INVENTORY ZONE
HUMAN PLAYER: CONCESSION COUNTER	Aids in setup of the ROBOT prior to a MATCH; Organizes POPCORN and BUTTER into buckets and scores them at the CONCESSION COUNTER.	1 per ALLIANCE	CONCESSION STAND

4.8 MATCH LOGISTICS

GAME PIECES that leave the FIELD are reintroduced by FIELD STAFF

An ARENA FAULT may occur if a primary scoring structure has failed or if a situation within the ARENA arises and is deemed unsafe or too large a hazard for TEAMS currently competing in that MATCH to play around it without a large or uneven detriment to a TEAM or ALLIANCE.

An ARENA FAULT will not be called for MATCHES that accidentally begin with the incorrect number of, incorrectly positioned, or damaged GAME PIECES. Damaged GAME PIECES will not be replaced until the next FIELD reset period after the currently ongoing MATCH. DRIVE TEAMS should alert the FIELD STAFF to any missing or damaged GAME PIECES prior to the start of a MATCH.

Once the MATCH is over and the FIELD STAFF determines that the FIELD is safe for all parties on the FIELD during that MATCH, FIELD STAFF will announce that the FIELD is safe and DRIVE TEAMS may retrieve their ROBOT.

In addition to the two (2) minutes and thirty (30) seconds of play, each MATCH also has a pre- and post-MATCH time for setup and reset of the ARENA. During ARENA reset, the ARENA is cleared of ROBOTS and OPERATOR CONSOLES from the MATCH that just ended. The ROBOTS and OPERATOR CONSOLES for the subsequent MATCH

are loaded in the ARENA by DRIVE TEAMS at this time. FIELD STAFF also use this time to reset the ARENA elements and GAME PIECES.

5 SAFETY RULES

Safety is paramount at all times, and each rule below is intended to establish norms that will mitigate injury risk to all participants.

S01. Dangerous ROBOTS: not allowed. ROBOTS whose operation or design is dangerous or unsafe are not permitted.

*Violation: If before the MATCH, the offending ROBOT will not be allowed to participate in the MATCH, if during the MATCH, the offending ROBOT will be **DISABLED**.*

S02. Wait for the ALL CLEAR before entering the FIELD. TEAM members may only enter the FIELD if the designated FIELD STAFF has given the ALL CLEAR signal or has allowed TEAMS to enter onto the FIELD.

*Violation: **Verbal warning**. If repeated at any point during the event, **YELLOW CARD**. If egregious, **RED CARD**.*

S03. Never step/jump over the Guardrail. TEAM members & FIELD STAFF may only enter or exit the FIELD at designated locations.

*Violation: **Verbal warning**. If repeated at any point during the event, **YELLOW CARD**. If egregious, **RED CARD**.*

S04. Humans, stay off the FIELD during the MATCH. DRIVE TEAMS may not extend body parts into the FIELD during the MATCH. HUMAN PLAYERS must be especially aware of these actions.

*Violation: **YELLOW CARD**.*

S05. ROBOTS, stay on the FIELD during the MATCH. ROBOTS and anything they control, e.g. a GAME PIECE, may not contact anything outside the FIELD that is not the designated STOREROOMS.

*Violation: Offending ROBOT will be **DISABLED**.*

S06. Stay off the FIELD ELEMENTS. All participants in the ARENA may not sit, climb, or hang on the FIELD ELEMENTS

*Violation: **Verbal Warning**. If repeated at any point during the event, **YELLOW CARD**.*

6 GAME RULES

6.1 ROBOTS

6.1.1 BEFORE/AFTER THE MATCH

G01. Know your ROBOT setup. When placed on the FIELD for a MATCH, each ROBOT must be:

- A. In compliance with all ROBOT rules, i.e. has passed inspection,
- B. The only item left on the FIELD by the DRIVE TEAM,
- C. Confined to its overall ROBOT SIZE RESTRICTION,
- D. Contained completely within the STARTING ZONE,
- E. Possessing no more than one (1) BUTTER and no more than sixteen (16) POPCORN.

Violation: If fix is a quick remedy, the MATCH won't start until all requirements are met. If it is not a quick remedy, the offending ROBOT will be DISABLED.

G02. ROBOTS must be removed from the FIELD by hand (i.e. no enabling, power, etc.). ROBOTS will not be re-enabled after the conclusion of the MATCH, nor will TEAMS be permitted to tether the ROBOT unless with express permission from designated FIELD STAFF.

Violation: YELLOW CARD.

6.1.2 DURING AUTONOMOUS ONLY

G03. During AUTON, hands off the controls. During AUTON, DRIVE TEAM members in ALLIANCE STATIONS may not contact any of the OPERATOR CONSOLES on the DRIVER STATIONS.

Violation: 5-Point Penalty per item contacted.

G04. During AUTON, let the ROBOT do its thing. During AUTON, DRIVE TEAMS may not directly or indirectly interact with ROBOTS or OPERATOR CONSOLES unless for personal safety, OPERATOR CONSOLE safety, or pressing an E-Stop.

Violation: 5-Point Penalty and YELLOW CARD per item contacted.

G05. During AUTON, HUMAN PLAYERS keep the GAME PIECES outside the FIELD. During AUTON, HUMAN PLAYERS may not introduce GAME PIECES into the FIELD in any way.

Violation: 5-Point Penalty and YELLOW CARD per item contacted.

G06. During AUTON, Stay on your side. During AUTON, Any part of a ROBOT may not cross the STANCHION LINE or enter the SNACK BAR.

Violation: 5-point Penalty or 10-point Penalty if the violation results in contacting another ROBOT or GAME PIECE.

6.1.3 GAME PIECE INTERACTION

G07. Don't hold more than one (1) BUTTER at a time. ROBOTS may not CONTROL more than one (1) BUTTER at a time.

Violation: 10-Point Penalty for each BUTTER being possessed past one (1) BUTTER.

G08. Don't launch GAME PIECES outside the POPPER ZONE. ROBOTS may not launch GAME PIECES unless they are intersecting the POPPER ZONE.

Violation: 5-Point Penalty for each GAME PIECE launched outside the POPPER ZONE

G09. Use GAME PIECES as directed. ROBOTS may not deliberately use GAME PIECES in an attempt to ease or amplify the challenge associated with FIELD elements.

*Violation: **5-Point Penalty** for each GAME PIECE. Repeated at any point during the event or egregious violations of this rule are likely to escalate rapidly to **YELLOW CARD** or **RED CARD**.*

G10. Keep GAME PIECES in bounds. ROBOTS may not intentionally eject GAME PIECES from the FIELD, except through the STOREROOM lower opening or by scoring BUTTER in the MELTER.

*Violation: **5-Point Penalty** for each GAME PIECE. Repeated at any point during the event or egregious violations of this rule are likely to escalate rapidly to **YELLOW CARD** or **RED CARD**.*

6.1.4 FIELD INTERACTION

G11. Don't hurt the FIELD. ROBOTS may not intentionally or repeatedly cause damage to the FIELD. Damaging the FIELD can include:

- A. deformation of FIELD or FIELD elements,
- B. significant movement of FIELD or FIELD elements,
- C. or significant damage of FIELD or FIELD elements.

*Violation: **Verbal warning** after first offense; escalation to **YELLOW CARD** or **RED CARD** with repeated or intentional attempts to damage the FIELD.*

G12. Be careful around the netting. ROBOTS may not touch the netting of the POPPER .

*Violation: **Verbal warning** after first offense; escalation to **5-Point Penalty** and **YELLOW CARD** with repeated or intentional attempts to damage the NET*

6.1.5 ROBOT RESTRICTIONS

G13. Obey the Speed Limit. ROBOTS may not exceed the maximum speed of 10.5 feet per second. This rule will be hard to monitor and will rely on TEAM honesty.

*Violation: **YELLOW CARD** if proven to be moving faster than allowed speed. There is no immediate penalty associated with this rule, but you may be asked to prove that you're unable to move faster than the speed limit through either gearing/motor selection or through code.*

G14. Keep it together. ROBOTS may not intentionally detach or leave parts on the FIELD.

*Violation: **RED CARD**.*

G15. Don't overextend yourself. ROBOTS may not extend past the ROBOT SIZE RESTRICTION

*Violation: **5-Point Penalty** for every 5 seconds past extension after a five (5) second countdown. **DISABLED** after 3 consecutive offenses. Egregious violations of this rule are likely to escalate to **YELLOW CARD**.*

6.1.6 ROBOT TO ROBOT INTERACTION

G16. There's a 3-count on pins. ROBOTS may not PIN an opponent's ROBOT for more than three (3) seconds. A ROBOT is PINNING if it is preventing the movement of an opponent ROBOT by contact, either direct or transitive (such as against a FIELD element). A ROBOT is considered PINNED until the ROBOTS have separated by at least six feet from each other or either ROBOT has moved six feet from where the PIN initiated, whichever comes first. The PINNING ROBOT(S) must then wait for at least three (3) seconds before attempting to PIN the same ROBOT again.

*Violation: **5-Point Penalty**, plus an additional **10-Point Penalty** for every five (5) seconds in which the situation is not corrected.*

G17. Don't collude with your partners to shut down major parts of game play. Two (2) ROBOTS that appear to a REFEREE to be working together may not isolate or close off any major component of MATCH play.

*Violation: **10-Point Penalty**, plus an additional **10-Point Penalty** for every five (5) seconds in which the situation is not corrected.*

G18. Don't tear others down to lift yourself up. ROBOT actions that appear to be deliberate to a REFEREE and that cause damage or inhibition via attaching, tipping, or entangling to an opponent ROBOT are not allowed.

*Violation: **10-Point Penalty** and a **YELLOW CARD**. If harm or incapacitation occurs as a result of the strategy, **RED CARD**.*

G19. Stay out of other ROBOTS. A ROBOT with a SUBSYSTEM(S) outside its PRIMARY FRAME may not initiate direct contact with an opponent ROBOT inside the vertical projection of its PRIMARY FRAME using that SUBSYSTEM.

*Violation: **5-Point Penalty** per contact.*

G20. Damaging other ROBOTS, not allowed. Regardless of intent, a ROBOT may not initiate direct contact inside the vertical projection of an opponent ROBOT'S PRIMARY FRAME that damages or functionally impairs the opponent ROBOT.

*Violation: **10-Point Penalty** and a **YELLOW CARD**.*

6.1.7 ZONE SPECIFIC RESTRICTIONS

G21. Don't enter the POPPER ZONE. A ROBOT may not intersect an opponent's POPPER ZONE.

Violation: 5-Point Penalty plus an additional 5-Point Penalty for every three (3) seconds in which the situation is not corrected.

G22. Don't block the STOREROOM. A ROBOT that is intersecting an opponent's STOREROOM ZONE may not contact an opponent ROBOT, regardless of who initiates contact.

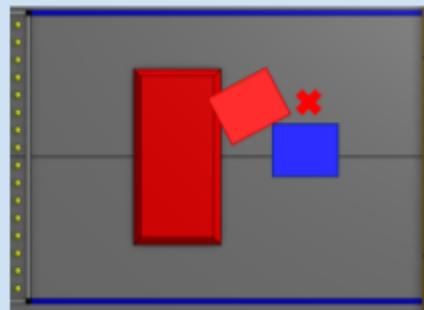
Violation: 10-Point Penalty for contacting opposing ROBOT in opposing ROBOT'S SAFE ZONE.

If Red Robot in a Blue STOREROOM ZONE contacts a Blue ROBOT: Penalty. If a Blue ROBOT in a Blue Zone Contacts a Red ROBOT: No Penalty. (Regardless of who initiates contact in both cases.)

G23. No stealing SEATS (part 1). During the end game, ROBOTS may not contact an opponent ROBOT in contact with their SEATS, regardless of who initiates contact.

Violation: 10-Point Penalty per instance and opposing ROBOT is considered fully supported by its SEATS

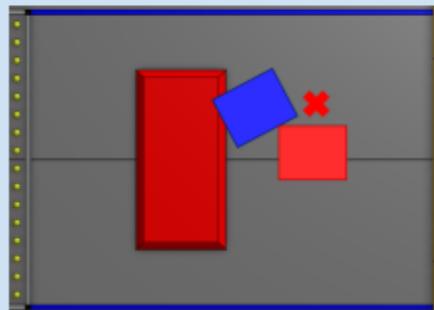
During the END GAME, a Red ROBOT is intersecting the Red SEATS and is contacted by a Blue ROBOT: Penalty against Blue, regardless of who initiates contact.



G24. No stealing SEATS (part 2). During the end game, ROBOTS in contact with their opponent's SEATS may not be contacted by an opponent ROBOT, regardless of who initiates contact.

Violation: 10-Point Penalty per instance and opposing ROBOT is considered fully supported by its SEATS

During the END GAME, a Blue ROBOT is allowed to cross the Red SEATS, but if it contacts a Red ROBOT while intersecting the Red SEATS: PENALTY against Blue, regardless of who initiates contact.



6.2 HUMANS

6.2.1 BEFORE THE MATCH

G25. Rotate your DRIVE TEAM for Qualification MATCHES. The point of *MinneTrials* is to provide valuable DRIVE TEAM experience to as many students as possible on the TEAM. During Qualification MATCHes, No TEAM Member is allowed to be a DRIVER, COACH, or HUMAN PLAYER for a second time until everyone else on their TEAM has had an opportunity to be one of those roles in a Qualification MATCH.

Violation: MATCH will not start until the situation has been corrected.

G26. Know your DRIVE TEAM positions. Prior to the start of the MATCH, DRIVE TEAMS must be positioned as follows:

- A. DRIVERS and COACHES must be within the ALLIANCE STATION, and
- B. Not in contact with the OPERATOR CONSOLE.
- C. HUMAN PLAYERS must be within the STOREROOM ZONE or CONCESSION STAND.

Violation: MATCH will not start until the situation is remedied.

6.2.2 DURING THE MATCH

G27. Controllers for DRIVERS only. A ROBOT shall be operated solely by DRIVERS of that TEAM.

Violation: DISABLED.

G28. COACHES, hands off. During a MATCH, COACHES may not touch GAME PIECES or DRIVER controls unless for safety purposes.

Violation: 5-Point Penalty per instance.

G29. Transfer GAME PIECES appropriately. GAME PIECES may only enter and leave the FIELD of play as seen in section 3.4.

Violation: 5-Point Penalty per GAME PIECE.

G30. Roll or push, never throw POPCORN can only be introduced onto the FIELD from the provided bucket. HUMAN PLAYERS must roll or push game pieces back into play such that the GAME PIECE is in contact with the traversing surface the entire way as it travels back into play.

Violation: 5-Point Penalty per GAME PIECE being re-entered too aggressively.

6.2.3 IN THE ARENA

G31. By invitation only. Only DRIVE TEAMS from the current MATCH are allowed in their respective ALLIANCE STATIONS during that MATCH.

Violation: MATCH will not start until the situation is corrected. YELLOW CARD for teams who introduce non DRIVE TEAM members after the MATCH has begun.

G32. Teams can cheer, but shouldn't COACH. TEAM members outside the DRIVE TEAM may not COACH or use signaling devices during the MATCH.

Violation: YELLOW CARD.

G33. Don't mess with GAME PIECES. TEAMS may not intentionally modify or damage GAME PIECES in any way.

Violation: RED CARD.

7 ROBOT CONSTRUCTION RULES

This section of the 2025 **MinneTrials** Game Manual presents legislation relevant to the construction of the 2025 **MinneTrials** ROBOT. ROBOTS must pass Inspection at the event to confirm compliance before being allowed to compete.

7.1 OVERVIEW

The ROBOT construction rules closely mirror those of a traditional FRC game. Many times in this section, you will be directed to view the [FRC 2025 Game Manual](#) for further details. The following sections will further explain the unique differences that are specific to **MinneTrials** program.

MinneTrials is meant to help train students of TEAMS on the processes they will be using during the official FRC season when making their ROBOTS. An emphasis should be placed on the training and education of students when constructing ROBOTS for **MinneTrials**. That also means that the expectation for the appearance of ROBOTS in this program should not look like a top-end FRC ROBOT. It should more closely resemble ROBOTS along the lines of an [Everybot](#) or [Ri3D](#) ROBOT.

In general, we want the comparisons between ROBOTS at the competition to be about decisions made to accomplish a task versus the perceived quality/resources one team had versus another to make that mechanism.

7.2 GENERAL ROBOT DESIGN

R01. The ROBOT must start a MATCH inside the ROBOT VOLUME of 36" long x 36" wide x 30" tall and not extend beyond the ROBOT VOLUME during a MATCH.

Unlike traditional FRC, TEAMS may have ROBOTS with a STARTING CONFIGURATION outside what is traditionally known as a FRAME PERIMETER. I.e. as long as the ROBOT is within the ROBOT VOLUME dimensions at all times (unless otherwise stated), subsystems are allowed to exist outside of the drivetrain prior to the start of the MATCH.

R02. The ROBOT weight must not exceed the weight of 125 lbs.

Battery and bumpers do not count towards the 125 lbs limit.

R03. The ROBOT must be designed to not exceed a speed of 10.5 feet per second, through either gearing/motor selection, code, or a combination of both.

Note: This rule is obviously going to be hard to enforce, so please be honest about your robot construction and avoid making a robot that goes over the speed limit.

R04. The ROBOT should be developed by Students. ROBOTS should be designed, built, and programmed by Students. Teachers, mentors, parents, etc. may answer questions, give instruction on practices, help build FIELD ELEMENTS, assist in tool and safety education, etc. but should allow Students to design, build, programming, or development of the ROBOTS.

Note: This rule is enforced via the "honor system", as there is no way to enforce this rule on Teams outside of events. We ask that all Teams, and specifically all teachers, mentors, parents, etc. use their best judgment as to whether they should do something or not. If there are any questions, the Q&A can be utilized.

R05. The ROBOT may have components made prior to kickoff. Components, whether it be parts or assemblies, can be used to compete with, even if they were used in a previous **MinneTrials** or FRC season, so long as the components used meet the requirements of all other rules in this manual.

R06. The ROBOT must include an ALLIANCE MARKER attachment device. The ALLIANCE MARKER shall be easily visible from 20-feet and all sides of the ROBOT. See [ALLIANCE MARKER CAD files](#) for example. Team designed ALLIANCE MARKERS of substantially similar size and proportions as the example ALLIANCE MARKERS are allowed. Teams must be able to switch between ALLIANCE MARKERS in less than 15 seconds.

7.3 ROBOT SAFETY & DAMAGE PREVENTION

R07. Traction devices must not have surface features such as metal, sandpaper, hard plastic studs, cleats, hook-loop fasteners, or similar attachments that could damage the ARENA. Traction devices include all parts of the ROBOT that are designed to transmit any propulsive and/or braking forces between the ROBOT and FIELD carpet.

R08. Protrusions from the ROBOT and exposed surfaces on the ROBOT shall not pose hazards to the ARENA elements (including the GAME PIECES) or people.

R09. ROBOT parts shall not be made from hazardous materials, be unsafe, cause an unsafe condition, or interfere with the operation of other ROBOTS.

For more details on this rule, see the blue box section of [FRC 2025 Game Manual](#)'s R203.

R10. ROBOTS must allow removal of GAME PIECES from the ROBOT and the ROBOT from the FIELD elements when DISABLED and powered off.

R11. Lubricants may be used only to reduce friction within the ROBOT. Lubricants must not contaminate the FIELD or other ROBOTS.

R12. BUMPERS are required, and shall be constructed of a pair of stacked pool noodles. The pool noodles may be attached via tape, zip ties, fabric or other durable, flexible material. Pool noodles are defined in [FRC 2025 Game Manual](#) R408.C. BUMPERS do not need to cover the full FRAME PERIMETER as in FRC 2025.

7.4 FABRICATION CONSTRAINTS

R13. The total cost of all items on the ROBOT, including software, shall not exceed the following values in the table below.

Option 1	Cost
Using the AndyMark KoP Drivetrain Kit as your drivetrain	\$1,000.00
Using a Custom Chassis as your drivetrain including motors	\$1,600.00

There will not be an officially checked CAW, and teams participating will be trusted on their merit to not abuse this rule and stay within the spirit of this program.

A list of exempted items that are viewed as widely commonly used items below also will not count towards the limit. Items that are part of a vision processing system (like the Limelight in the table below) are also exempt from the individual item cost limit. This is intended to allow teams to utilize existing systems without spending time and developing new systems.

Exemption Item	Approximate Cost	Exempt Qty
Limelight	\$399.99	1
RoboRIO	\$485.00	1
Power Distribution (PDP/PDH)	\$205.00 - \$240.00	1
Pneumatics (PCM/PH)	\$90.00	1
VRM	\$50.00	1
Mini Power Module	\$35.00	1
Radio Power Module	\$40.00	1

R14. No individual, non-KOP item or software used on the ROBOT shall have a Fair Market Value that exceeds \$300 USD. The total cost of COMPONENTS purchased in bulk may exceed \$300 USD as long as the cost of an individual COMPONENT does not exceed \$300 USD.

7.5 MOTORS & ACTUATORS

R15. Rules in section 8.5 of the [FRC 2025 Game Manual](#) (R501 - R506) all apply.

7.6 POWER DISTRIBUTION

R16. Rules in section 8.6 of the [FRC 2025 Game Manual](#) (R601 - R625) all apply.

7.7 CONTROL, COMMAND & SIGNAL REQUIREMENTS

R17. Rules in section 8.7 of the [FRC 2025 Game Manual](#) (R701 - R718) all apply.

R18. During a MATCH, ROBOTS are controlled via communication between a TEAM'S Operator Console and their ROBOT'S radio.

MinneTrials (at least for the Fall 2025 season) will not use a centralized FIELD Management System. Teams will manually change configurations and enable/disable their robots during a MATCH, similar to what FTC used to do.

7.8 PNEUMATIC SYSTEM

R19. Rules in section 8.8 of the [FRC 2025 Game Manual](#) (R801 - R814) all apply.

7.9 OPERATOR CONSOLE

R20. Rules in section 8.9 of the [FRC 2025 Game Manual](#) (R901 - R906) all apply.

8 TOURNAMENT

The 2025 **MinneTrials** event is played in a Tournament format. The Tournament consists of Practice MATCHES, Qualification MATCHES, and Playoff MATCHES. The 2025 **MinneTrials** Tournament will consist of seven (7) to twelve (12) TEAMS from FRC TEAMS around FIRST Upper Midwest.

Practice MATCHES provide each TEAM with an opportunity to operate its ROBOT on the FIELD prior to the start of the Qualification MATCHES.

Qualification MATCHES allow each TEAM to earn a seeding position that may qualify them for participation in the Playoff MATCHES.

Playoff MATCHES determine the event Champions.

8.1 MATCH SCHEDULES

A MATCH schedule is used to coordinate MATCHES at the Event. Figure 8-1 details information shown on each schedule.

Event Name						
Matches Per Team		12				
Time	Description	Match	Blue 1	Blue 2	Red 1	Red 2
Sat 2:30p	Qualification 1	1	1	2	3	4
Sat 2:40p	Qualification 2	2	5	6	7*	8
Sat 2:50p	Qualification 3	3	9*	10	11	12

ALLIANCE Red or Blue
PLAYER STATION number 1, 2, or 3

MATCH Start Time
MATCH Type
MATCH Number
Asterisk (*) indicates SURROGATE MATCH

Figure 8-1 Sample MATCH Schedule

8.2 PRACTICE MATCHES

Practice MATCHES are played before Qualification MATCHES. Practice MATCHES will be split between Open Practice (first half) and Assigned Practice (second half).

Each TEAM at the event will be given at least one (1) Assigned Practice MATCH. Open Practice MATCHES will take place for the first half of the Practice Period of the event. During Open Practice MATCHES, TEAMS can play on a first-come, first-served basis to continue playing Practice MATCHES.

TEAMS may only play back-to-back Practice MATCHES (either Open or filler during Assigned) if there are no other TEAMS in the filler line who did not play in the previous Practice MATCH.

8.3 QUALIFICATION MATCHES

The Qualification MATCH schedule is made available as soon as possible, but no later than one (1) hour before Qualification MATCHES are scheduled to begin. TEAMS will receive a copy of the MATCH schedule via email as well as being made available online. Each MATCH schedule consists of a series of rounds in which each TEAM will play at least nine (9) Qualification MATCHES.

The Event will assign each TEAM one (1) ALLIANCE partner for each Qualification MATCH using a predefined algorithm, and teams may not switch Qualification MATCH assignments.

In accordance with rule **G27**, every TEAM member must rotate into a DRIVE TEAM position at least once before allowing a TEAM member to become a DRIVER a second time.

8.3.1 QUALIFICATION RANKING

Ranking Points (RP) are units credited to a team based on their ALLIANCE'S performance in Qualification MATCHES. Ranking Points are awarded to each eligible team at the completion of each Qualification MATCH, as seen on Table 8-1 Below.

Table 8-1 Qualification Ranking Points

RESULT	RP
Win	3
Tie	1
Loss	0
Matinee Bonus	1
Pop Off/More Butter More Better Bonus	1
Everyone Seated	1

Exceptions to Ranking Point assignment are as follows:

1. A SURROGATE receives zero (0) Ranking Points
2. A DISQUALIFIED TEAM, as determined by the REFEREES, receives zero (0) Ranking Points in a Qualification MATCH or causes their ALLIANCE to receive zero (0) MATCH points during a Playoff MATCH
3. A "no-show" team is either DISQUALIFIED from or issued a RED CARD for that MATCH. A team is declared a no-show if no member of the DRIVE TEAM is in the ALLIANCE STATION at the start of the MATCH.

The total number of Ranking Points earned by a TEAM throughout their Qualification MATCHES will determine their Ranking for ALLIANCE Selections before tiebreakers (see section 8.5 for more details).

8.3.2 Ranking Tiebreakers

In the event of an exact Ranking Point tie at the end of the Qualification MATCHES the following tiebreakers will be used:

1. Fewest total FOUL points awarded to opposing ALLIANCES.
2. Highest average MATCH score.
3. Highest average SEATS score.
4. Random Selection.

8.4 PLAYOFF MATCHES

Playoff MATCHES will consist of a Double Elimination format with four (4) Playoff ALLIANCES.

ALLIANCES are allowed to keep the same DRIVE TEAM throughout the entirety of the Playoff MATCH schedule.

ALLIANCES are also allowed to use the backup ROBOT if needed, and can switch between the backup ROBOT and regular ROBOT throughout playoffs.

8.4.1 PLAYOFF SCHEDULE

4 Alliance Double Elimination		
Matches	Cycle	Total
Round 1-1	0:09:00	0:09:00
Round 1-2	0:09:00	0:18:00
Field Timeout	0:10:00	0:28:00
Upper SF	0:09:00	0:37:00
Lower Round 2	0:09:00	0:46:00
Field Timeout	0:10:00	0:56:00
Lower SF	0:09:00	1:05:00
Field Timeout	0:10:00	1:15:00
Finals 1	0:09:00	1:24:00

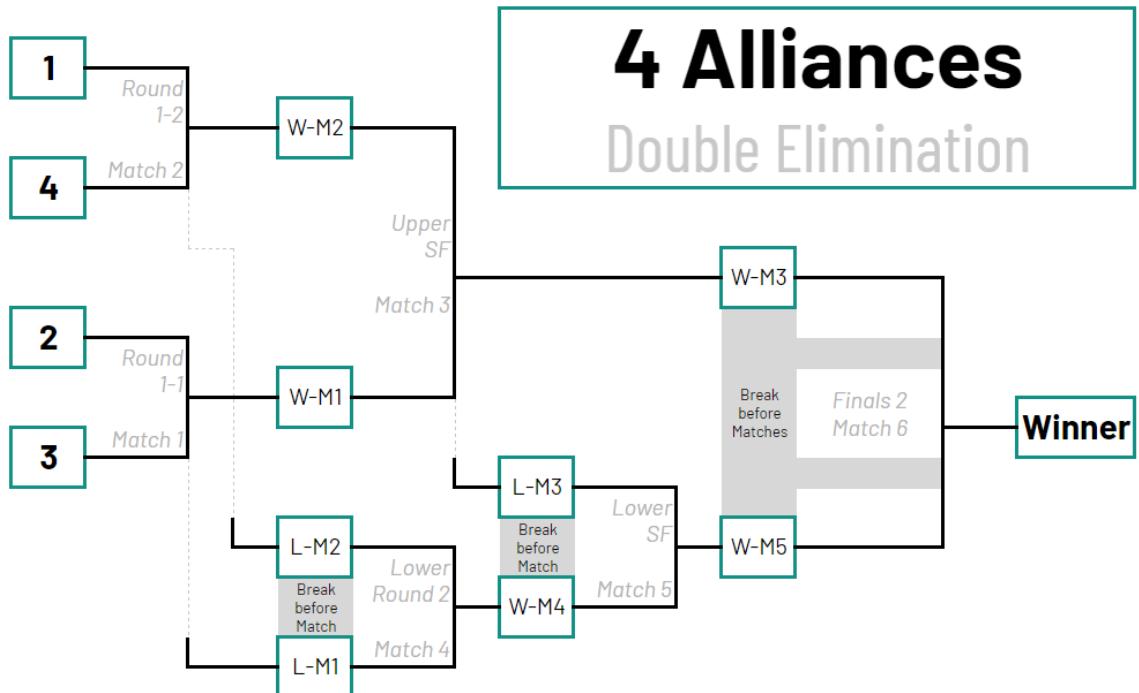


Figure 8-2 4-Alliance, Double Elimination Playoff Schedule Graphic

8.4.2 PLAYOFF PERFORMANCE

The ALLIANCE with the highest score wins the playoff match.

See the Tiebreakers section (Section 8.5) for Tiebreakers if teams match in their Ranking Points.

8.4.3 TIMEOUTS

During the Playoff MATCHES of the Tournament, each TEAM will be given a total of one (1) Timeout for the duration of the Playoff MATCHES. Each Timeout adds an additional ten (10) minutes of time from the original Cycle Time between MATCHES.

Timeouts must be requested within forty-five (45) seconds after the previous MATCH has ended to be awarded the timeout. TEAMS may not request a timeout between MATCHES that already have a built-in FIELD Timeout.

8.5 TIEBREAKERS

In the event of a tie in a Playoff MATCH, the tie breaking order is as follows:

1. Least amount of Penalty Points awarded
2. Highest total SEATS score
3. Highest COMBO BUCKET score

4. Best of three (3) Rock-Paper-Scissors MATCH or a POPCORN catch competition between tied ALLIANCES at the discretion of the FIELD STAFF

8.6 AWARDS

The winners of the Finals matches will be awarded with WINNER trophies, and second place will be awarded with FINALIST trophies. All other teams will be awarded commemorative trophies to mark their participation in the 2025 *MinneTrials* season and Event.

There will be no additional awards for the 2025 season of *MinneTrials*. We hope to include more awards in future seasons.

A Appendix

A.1 DEFINITIONS

See Glossary in Section 12 of the [FRC 2025 Game Manual](#) for additional definitions.

A.2 FAQ

Q-01. Why such a small FIELD size?

A01. The size of the FIELD is meant to allow an entire competition (FIELD, pits, etc) within the size of a single basketball court to fit in more locations than a traditional FRC FIELD.

Q-02. Why 2 vs. 2 instead of 3 vs. 3?

A-02. As a smaller competition with less teams overall, having a 2 vs. 2 format will allow teams more opportunities to play MATCHES, and still provide a fun and challenging game that can be played with four (4) ROBOTS on the FIELD instead of the traditional six (6).

Q-03. Why the limit of maximum speed (10.5 fps)?

A-03. A few reasons, (1) the FIELD is much smaller so ROBOTS using traditional 12+fps drivetrains for FRC will traverse the FIELD too fast, which would significantly affect the pace of the MATCH, (2) our FIELD borders are much weaker, only using 2"x8" plywood, and (3) we want new drivers to be able to come in at a slower, more comfortable pace when driving in a match for potentially their first time ever.

Q-04. Will this run on FMS or FMSlite?

A-04a. No, the communication for each team will be handled from each team's DRIVER's Station to their ROBOTS like you would normally when practicing wirelessly at your own build spaces.

A-04b. We would be willing and open to anyone who is interested in helping develop a similar system that would work for this type of application.

Q-05. How will live scoring be handled if a game is exact-score dependent?

A-05a. We will likely be using a combination of Google Suite files (like spreadsheets, forms, etc) to gather live scores and send them to an OBS overlay manually during each MATCH.

A-05b. We would be willing and open to anyone who is interested in helping develop a similar system that would work for this type of application.

Q-06. Why rotate DRIVE TEAMS during qualification MATCH?

A-06. The primary goal of **MinneTrials** is to provide valuable experiences for as many students as possible in as many parts of the FRC program as possible. Since being on a DRIVE TEAM is typically much more restricted in traditional FRC, we want our program to give more "hands on sticks" time to more students than would normally have an opportunity to do so in a competition setting.

Q-07. How to ask additional questions?

A-07a. For game specific questions please use the Q&A form at minnetrials.org/seasons/2025/q&a

A-07b. For general event questions please email info@minnetrials.org

A.3 HELPFUL REFERENCE IMAGES

N/A at initial release.