

Kickoff Weekend Schedule

Kickoff Broadcast

Watch the game reveal!

Kickoff Broadcast Q/A and Rules Test

Read all of the rules. Rules test will be announced when ready. Do not move to next section until you have passed the rules test.

Game Review Questions

Complete the following questions individually or with other tablemates who have passed the rules test. Try to have answers to all of these questions before lunch is over.

1. List all “types” of game elements in the game. How many of each “type” of game element are in a single match? Are any in any protected zones so that only 1 alliance can use them?

Element	Quantity	Value
cubes	44	low (3 auto and 2 teleop) medium (4 auto and 3 teleop) high (6 auto and 5 teleop)
cone	54	low (3 auto and 2 teleop) medium (4 auto and 3 teleop) high (6 auto and 5 teleop)

2. List all possible ways to score points (besides FOUL points)

Stage (auto, teleop, end game)	Action	Time per cycle	Value (pts and RP)	Pros	Cons
Teleop	Link , have a row of three pieces in the grids.	2:15	5 Pts	Best way of getting points, you only need to have some idea of where to put game elements, and it can add up pretty fast.	Limit of only 9 of these in a game, making it a maxed out 45 points total.

Endgame	Park , have bumpers entirely in the community during endgame, but is not docked.	0:30	2 Pts	Easiest way to get a couple extra endgame points, fast	Worst endgame option for points
Endgame	Docked , be contacting only the charge station and/or other items also directly touching the charge station.	0:30	6 Pts, +2 Auto	Much better points than just Parking, and easier to do than Engaging.	Engaging is just better than this, making it more attainable to get the RP. Only one Robot can Dock/Engage during Auto.
Endgame	Engaged , be docked, but also have the Charge Station be leveled.	0:30	10 Pts, +2 Auto	Best way to get endgame points, plus auto points	Hard to balance robot's center of gravity as close to the center during auto maybe? Only one Robot can Dock/Engage during Auto.

3. Are there any important size/height limits or appendage constraints?

The limit for extender is 48". 4'6" height limit at start, and 6'6" height limit after game start. Frame perimeter is 120" limited, and the weight limit is 125lb.

4. List all (if any) possible ways to de-score points (besides FOUL points). I.e, what are the ways you can remove points from the opposing alliance?

De-scoring is not possible because you cannot remove points from the opposing alliance's GRIDS (G405)

You also can't push robots off of their charge stations (G304)

5. Which FOULS does your table think will be the most influential, and why?

Foul #	Description	Reason
G207	Right of way (contact in	Protected zones take up a large

	opponent's protected zones)	portion of field and the requirements for a foul are very low
G108	No extension in opponent zone (especially for poorly constructed robots)	Lower-level robots with floppy or broken intakes will draw a lot of fouls
G204	Contact inside the frame perimeter	48" extension mean it will be much easier to accidentally contact other robots

6. Describe the ranking process in Qualification Matches. What factors impact a team's rank? If there are "ranking points" to sort teams, what are the tie breakers? In what order do the tie breakers apply?

- Team Rank:
 - Ranking score (# of RP)
 - Average Alliance Match points, not including fouls (points during matches)
 - Average Alliance Charge Station points (points earned from the Charge Station)
 - Average Alliance Auto points (points scored during auto)
 - Random sorting by the FMS

7. Are there any possible "chokehold" strategies in this year's game?

- a. A "chokehold" strategy is a strategy which, if implemented properly, will guarantee success in a given match, regardless of any action taken by the opposing alliance.

No real chokehold strategy because there are way more pieces than there are scoring opportunities but there are some strategies we can use.

- Blocking them from grabbing game pieces
- Knocking over cones to make them harder to pick up
- Grabbing game pieces from opposing alliance loading zone/field - attrition (risky)
- Corraling game pieces into our alliance loading zone

8. *What are some ways the human player(s) can manipulate the game items?

- a. What strategic advantages can be gained from human player actions?

- i. Give cones/cubes to robots through single substation
 1. Closer to get to cones/cubes for robots
 2. Human players could move a lot of parts at once at the start of the game so human players spend less time getting parts
 3. Give cones/cubes through the sliding chute
 - a. Ensure that the game elements are in a location accessible to multiple robots.
- ii. Give cones/cubes to robots through double substation
 1. Closer to stored cones/cubes for human player
 2. Give cones/cubes through the sliding deck

- a. Ensure that the cone is in an easy orientation to grab
3. Drop cones/cubes by moving the sliding deck

9. Is there any possible, effective “cheesecake” options for a low pick in the draft at an event?
 - a. “Cheesecake” is defined as a method of quickly retrofitting a low-scoring robot with a simple mechanism to better fit into the overall alliance strategy.

- Mechanism to place pieces on the middle row (and top if possible)
- Auto to get team onto the charging station
- Mechanism to drag alliance onto charging station

10. *List all possible things that could go wrong for our robot in a match. Be specific! What particular parts of the robot, strategy, opposing alliance, etc might go awry?

- a. Auto
 - i. Failed autos
 - ii. Forgetting to preload
 - iii. Alliance runs into each other
 - iv. Robot that goes onto the charging station doesn't engage
 - v. No air in pneumatics
 - vi. Hit away cubes on accident
- b. Incap
 - i. Knocked over
 - ii. Electrical failure
 - iii. Center of gravity is too high and falls over on charger (top heavy)
 - iv. Intake or other mechanism breaks
 - v. Runs out of battery
 - vi. G204 rule- stay out of the other robots
 - vii. Red card
 - viii. not turn on robot
 - ix.
- c. Teleop-
 - i. Robot defended while leaving/heading to substation
 - ii. Blocked from getting onto Charging Station in endgame
 - iii. Touches the opponent robot while they are still in their area.
 - iv. Robots do not coordinate when going on charger and do not leave space for all the robots to go on.
- d. Picking the wrong alliance partners
 - i. Strategizing robot picks around the charging station component could complicate the process, a lighter robot could be a more desirable partner as to balance easier
 - ii. Objective scouting data might suggest that a robot can score a lot of points and balance on the charging station but its weight could potentially throw off our own balance during the endgame sequence leading to less points being scored overall.
 - iii. Not understanding our alliance partner's abilities: Our alliance partners' robots should synergize with our own, as always we need to have a good understanding

of our alliance's strengths and weaknesses

11. What is the best way(s) to play defense for this game? Why?

- Important rules: (g207, robots in opponent loading zone/community no contact) (g108, no extension in opponent zones) (g202, 5 count on pins)
- Defense on the opponents scoring zone, work to keep them from entering, have to run diagonals, so try to prevent them from taking the shorter diagonal and if they get into a shoving match try to bait them into your protected zone, could bring fouls and significantly slow cycles
- Robot based defense, pick one robot and try to get them throughout their whole cycle, slow them down each time they go for a ball
- Defense on opponent substation, (loading zone), gives much more room to work with and can try to run them into your zone if they go up, giving a foul, and if they go down work to slow their cycle, probably more optimal

12. What does your team think is the best way to take advantage of the autonomous period? List some possible cycles

- First priority is to score a preload on the top rung. Cone would be preferable since it's harder to line up later, and we can stage the robot in front of the scoring location.
- Second priority is to dock and engage, to score 12 points and make progress towards the RP.
- Third priority is to retrieve as many as we can out of the 4 game pieces in the middle and score them.
- Fourth priority is to get the mobility bonus.
- Possible cycles
 - Preload + 2 from middle on both the loading station side and the cable bump side
 - Preload + 1 from middle + scale if our partners cant balance in auto

13. If there are multiple scoring elements or locations, what are the tradeoffs between those scoring objectives?

- a. Higher nodes/levels are worth more points but could take longer to score
- b. There are more scoring locations for the cones than the cubes
 - i. Cones are harder to score than cubes
 - ii. Less scoring opportunities for cubes (less nodes to score them on)
- c. Takes longer to have all robots on alliance parked on the energizer panel due to the imbalance. Takes longer, but worth more points
 - i. Also requires more communication/collaboration between the teams

14. What is the tradeoff for the end game versus continuing to score/play defense? Does it require an additional mechanism? How fast do you need to be at the end game to make it worth doing? Do you think the end game is worth doing? Why?

- If we have sustainability and they don't: 25s defend to stop ranking points if we're up a considerable amount of points, otherwise play it safe and keep scoring, in the last 5 second go to charge dock
- If we don't have sustainability: 25s Always play offense because it's worth it to try to get the ranking points from the sustainability bonus. The ranking points are crucial if there are ties at the end of the game.
- If both alliances have sustainability: 25s decisions based on scenario but usually play offense since it's almost always more beneficial to keep scoring than to defend, because we want to have a higher score, and if we both have sustainability it is likely that our scores are very similar, which leaves 5 seconds for the end game
- We should almost always play offense since we will probably usually be one of the best robots on the field. The endgame this year is a scale so we won't need an additional mechanism. For us to have an efficient end game we should be able to get on the charge dock in under 5 seconds. The end game is worth doing, it should be quicker to get on charge dock than to score a high point. It also counts towards rp so we should always go for the charge dock.

15. What are the minimum skills a robot needs to get picked for eliminations?

- a. First Pick
 - i. Good driver ability
 1. High accuracy
 - ii. Quickly pick up and score both game elements onto all levels
 - iii. Having a high-scoring auto
 1. Score game elements on all levels
 2. Engage or Dock with Charging Station
 3. preload
- b. Second Pick
 - i. Good driver ability
 1. Defense
 - ii. Has auto (for the 3 pt taxi)
 - iii. Able to push game elements
 - iv. Can score at least one kind of game element
 - v. Can fully dock during auto

16. For the **playoff (elimination) matches** at Regionals and the Championship, we anticipate playing with one additional "high performing" team as a first/second pick, and one "mid performing" team as a 23rd/24th pick. What is your table's proposed strategy for our alliance in these playoff matches in order to win the event? What is each robot on our alliance doing in that strategy, and at what time?

- A. Teleop- Our robot and the "high performing" team's robot should play offense and work on scoring as much as possible. The "mid performing" team's robot should play defense, be able to get onto the charging station, score in the hybrid. Maybe the second pick should be able to score in the hybrid nodes.
- B. Someone will balance the charger early. (Not as skilled drives go on first to not mess up the balance.
- C. Auto-

- a. Making sure that one of the robots in the alliance(preferably the second pick) able to get to the charging station.
- b. Each robot scores a cone at the top level.
- c. Put cones out in the middle outside of the community. (trying to put up 2 of those cones at highest or at least getting a second cone by the end of the auto period.
- D. Teleop -
 - a. We focus on scoring cones and first pick focuses on scoring cubes
- E. Try to pick a second pick that can balance the charging station in auto.
- F. Setup cubes in auto to make links easier in teleop.
- G. We want the second pick to balance first to lower the chance of error, then have second pick balance, making us last to balance.

17. ***“What”** can the 1678 robot do? List out **everything**

- - Auto Only
- - Teleop Only
- - Any Time

Drive

- Leave community
- Drive
- Drive sideways (not a waste of time)
- Drive smoothly over the ramp
- Drive over the barrier
- Relay video to driver
- Play defense
- Push other robots
- Park

Intake

- Pick up cubes from the floor
- Pick up cubes from the shelf
- Pick up cubes from the single loading station
- Pick up upright cones from the floor
- Pick up tipped cones from the floor
- Pick up upright cones from the shelf
- Pick up tipped cones from the shelf
- Pick up upside-down cones from the shelf
- Pick up cones from the single loading station
- Pick up cubes from opponent loading station (inside frame perimeter)
- Pick up upright cones from opponent loading station (inside frame perimeter)
- Pick up tipped cones from opponent loading station (inside frame perimeter)
- Drop/Outtake cubes
- Drop/Outtake cones
- Steal game pieces from other robots (while avoiding G204?)

Scoring

- Score cubes on a hybrid node
- Score cones on a hybrid node
- Score cubes on a middle cube node
- Score cones on a middle cone node
- Score cubes on an upper cube node
- Score cones on an upper cone node
- De-score own game pieces
- Move pieces from lower to higher

Charge Station

- Drive onto a level ramp
- Drive onto a “forward leaning” ramp
- Drive onto a “backwards leaning” ramp
- Drive onto the bridge from the side
- Balance/stabilize the bridge from the charge station
- Tilt the bridge from the charge station
- Balance/stabilize the bridge from the carpet
- Tilt the bridge from the carpet
- Dock alone
- Dock & Engage alone
- Dock with 1 partner
- Dock & Engage with 1 partner
- Dock with 2 partners
- Dock & Engage with 2 partners
- Drag a dead partner to the loading station
- Carry 1 partner
- Carry 2 partners
- Remain stable while partners moving bridge
- Drive off charge station

Misc

- Hold cube in starting configuration
- Hold cone in starting configuration
- Right cones
- Knock over cones
- Launch cubes
- Launch cones
- Track retroreflective targets
- Track AprilTags
- Track cones
- Track cubes
- Withstand collisions
- Don't pop cubes
- Reach over the barrier into opponent loading zone
- Hold multiple game pieces in community/loading zone
- Block driving paths with 48” extension
- Shuttle cubes

- Shuttle cones
- Loading zone defense transitively while holding cone (G207)
- Signal needed game piece to human player

18. "What" should the 1678 robot do? Please list out and justify each requirement of the 1678 robot.
[On whiteboard]

19. What additional comments/perspective would your table like to add to the discussion?

(G1) We could have 1 team transport cubes or cones, while the other 2 teams place the cubes or cones on the nodes

(G2) capped game

(G3) No storage

(G3) Holding two game pieces at a time should not be a "should"

(G5) Might not want to score on cooperation section

(G5) 1678 docking in auto and docking/engaging in endgame with buddy climb = 1 RP

(G5) RP actions don't give bonus points in elims

(G6) 2 robots bring elements to community because scoring may be faster than going across field to pick up while 1 robot scores

(G7) In auto you can't have a robot that's docked and engaged with the Charge Station, and a robot that's docked and NOT engaged with the Charge Station and only one robot can score each docked points so the only way to score multiple charging points would be to buddy climb
"A ROBOT is DOCKED if it is contacting only the CHARGE STATION and/or other items also directly or transitively fully supported by the CHARGE STATION." 6.4.2
but this isn't in our shoulds because 8 points aren't worth it

(G8) Potential strategy with efficiently scoring Links: Alliance robots unable to reach the middle and top Nodes may place Game Pieces in the Hybrid Nodes, and other robots capable of reaching higher level Nodes can place Game Pieces in their respective locations to increase points scored from individual Game Pieces and to create Links.

(G9) Don't think we should be ferrying pieces → seems inefficient
- Just grab and score instead

(G10) Have a defense robot that pushes pieces to our side

(G12) Important to share all capabilities of your robot, to your alliance, before the match so that you can create the most efficient plan for points during the match.

(G12) Going sideways would be helpful to line up on the scoring locations and dodge defense

(G15) less game pieces of floor as compared to last year Because the game pieces are not put back into circulation after being scored

(G15) If the low goal is easier it's possible that more teams will be likely to score on the lowest row. So we should try to score on the higher rows Because it's more likely we can rely on other teams to score on the low row than relying on the other teams to score on the high row. Of course if scoring on all three is possible that is optimal Because it gives us the most options.

(G15) Possible stratify of ferrying game pieces can create scouting data discrepancies and bring down teams PPG

(G17) More efficient to score on the low/mid row during auto IF you can guarantee scoring on all of the high nodes during teleop

(G17) Protected robot belly because the cones and cubes on the floor will be hazards

(G18) Cubes are generally easier to interact with than cones, so it might be important to prioritize cone consistency, as alliance mates are more likely to have cube intake and placement capabilities. In a similar vein, ensuring consistency on high nodes could be something to prioritize.