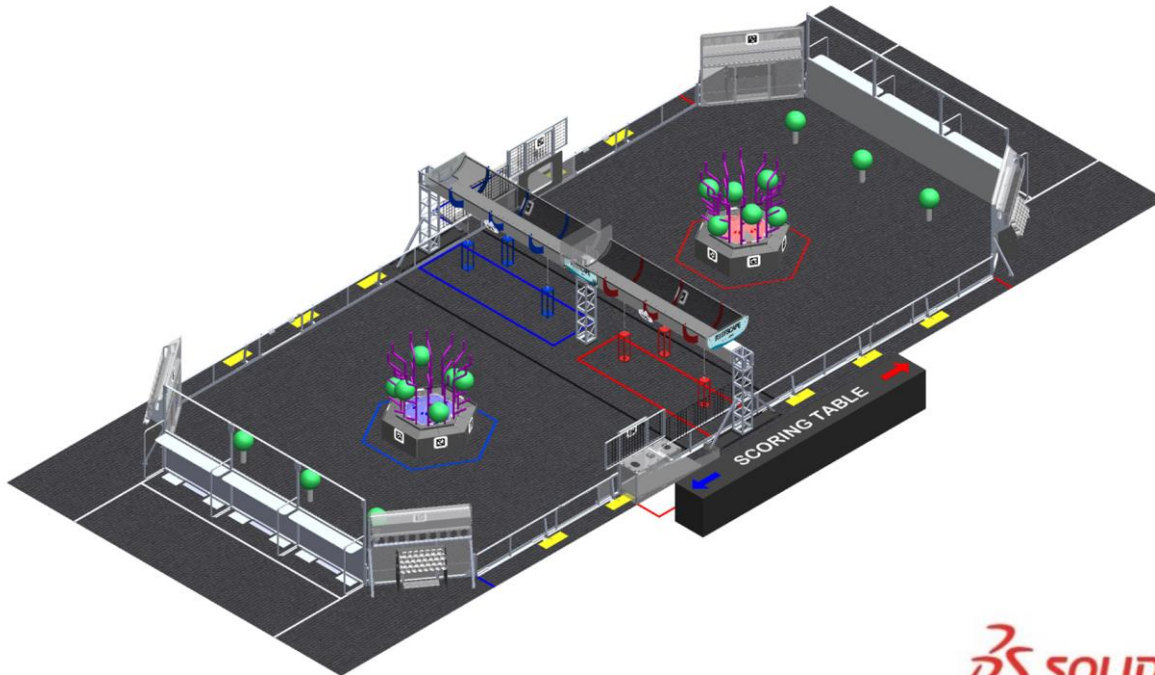


## 6 Game Details

Figure 6-1 REEFSCAPE



In REEFSCAPE, 2 ALLIANCES (an ALLIANCE is a cooperative of up to 4 *FIRST* Robotics Competition teams) play MATCHES, set up and implemented per the details described below.

### 6.1 MATCH Overview

MATCHES run on 7–10-minute cycles, which consist of pre-MATCH setup, the 2-minute and 30-second MATCH, and the post-MATCH reset.

During the MATCH, ROBOTS collect CORAL and score on their REEF. ROBOTS also collect ALGAE and score in their PROCESSOR or NET. HUMAN PLAYERS can score ALGAE in their NET once it has been passed to them via their opponent's PROCESSOR.

ROBOTS conclude the MATCH PARKING in their BARGE ZONE or suspending from a CAGE.

### 6.2 DRIVE TEAM

A DRIVE TEAM is a set of up to 5 people from the same *FIRST* Robotics Competition team responsible for team performance for a specific MATCH. There are 4 specific roles on a DRIVE TEAM which ALLIANCES can use to assist ROBOTS with REEFSCAPE, and no more than 1 member of the DRIVE TEAM may be a non-STUDENT.

The intent of the definition of DRIVE TEAM and DRIVE TEAM related rules is that, barring extenuating circumstances, the DRIVE TEAM consists of people who arrived at the event affiliated with that team and are responsible for their team's and ROBOT'S performance at the event (this means a person may be affiliated

with more than 1 team). The intent is not to allow teams to “adopt” members of other teams for strategic advantage for the loaning team, borrowing team, and/or their ALLIANCE (e.g. an ALLIANCE CAPTAIN believes 1 of their DRIVERS has more experience than a DRIVER on their first pick, and the teams agree the first pick team will “adopt” that DRIVER and make them a member of their DRIVE TEAM for Playoffs).

The definition isn’t stricter for 2 main reasons. First, to avoid additional bureaucratic burden on teams and event volunteers (e.g. requiring that teams submit official rosters that Queuing must check before allowing a DRIVE TEAM into the ARENA). Second, to provide space for exceptional circumstances that give teams the opportunity to display *Gracious Professionalism* (e.g. a bus is delayed, a COACH has no DRIVERS, and their pit neighbors agree to help by loaning DRIVERS as temporary members of the team until their bus arrives).

Table 6-1 DRIVE TEAM roles

Role	Description	Max./ DRIVE TEAM	Criteria
<b>COACH</b>	a guide or advisor	1	any team member, must wear “COACH” button
<b>TECHNICIAN</b>	a resource for ROBOT troubleshooting, setup, and removal from the FIELD	1	any team member, must wear “TECHNICIAN” button
<b>DRIVER</b>	an operator and controller of the ROBOT	3	STUDENT, must wear a “DRIVE TEAM” button
<b>HUMAN PLAYER</b>	a SCORING ELEMENT manager		

A STUDENT is a person who has not completed high-school, secondary school, or the comparable level as of September 1 prior to Kickoff.

The TECHNICIAN provides teams with a technical resource for pre-MATCH setup, ROBOT connectivity, OPERATOR CONSOLE troubleshooting, and post-MATCH removal of the ROBOT. Some pre-MATCH responsibilities for the TECHNICIAN may include, but are not limited to:

- location of the ROBOT radio, its power connection, and understanding of its indicator lights
- location of the roboRIO and understanding of its indicator lights
- username and password for the OPERATOR CONSOLE
- restarting the Driver Station and Dashboard software on the OPERATOR CONSOLE
- changing the bandwidth utilization (e.g. camera resolution, frame rate, etc.)
- changing a battery
- charging pneumatics

While the TECHNICIAN may be the primary technical member of the DRIVE TEAM, all members of the DRIVE TEAM are encouraged to have knowledge of the basic functionality of the ROBOT, such as the location and operation of the main

circuit breaker, connecting and resetting joysticks or gamepads from the OPERATOR CONSOLE, and removing the ROBOT from the FIELD.

## 6.3 Setup

Before each MATCH begins, FIELD STAFF stage SCORING ELEMENTS as described in section [6.3.4 SCORING ELEMENTS](#). DRIVE TEAMS stage their ROBOTS (as described in section [6.3.3 ROBOTS](#)) and OPERATOR CONSOLES (as described in section [6.3.2 OPERATOR CONSOLES](#)). Then, DRIVE TEAMS take their places as described in section [6.3.1 DRIVE TEAMS](#).

### 6.3.1 DRIVE TEAMS

DRIVE TEAMS prepare for a MATCH by staging in the appropriate areas, according to their role on the DRIVE TEAM, and by identifying themselves accordingly. DRIVE TEAM starting conditions are listed below, and a DRIVE TEAM obstructing or delaying any of the conditions is at risk of violating [G301](#).

- A. only DRIVE TEAM members assigned to the upcoming MATCH are present,
- B. For QUALIFICATION and PLAYOFF MATCHES only DRIVE TEAM members whose ROBOTS have passed initial, complete Inspection are present,
- C. no more than 1 HUMAN PLAYER is staged in their PROCESSOR AREA,
- D. any number of HUMAN PLAYERS are staged in their CORAL STATION AREAS,
- E. HUMAN PLAYERS not included in C or D, DRIVERS, and COACHES are in their ALLIANCE AREA and behind the HUMAN STARTING LINE,
- F. TECHNICIANS are in the event-designated area near the FIELD,
- G. DRIVE TEAM members clearly display their designated buttons above their waists (COACH - “Coach”, DRIVERS and HUMAN PLAYERS - “Drive Team”, and TECHNICIAN - “Technician”), and
- H. if a Playoff MATCH, the ALLIANCE CAPTAIN clearly displays their designated ALLIANCE CAPTAIN identifier (e.g. hat or armband).

### 6.3.2 OPERATOR CONSOLES

DRIVE TEAMS set up their OPERATOR CONSOLE as soon as the DRIVE TEAM from the previous MATCH has cleared the area. OPERATOR CONSOLES must be compliant with all relevant rules, specifically those in section [8.9 OPERATOR CONSOLE](#). The OPERATOR CONSOLE is plugged into the team’s assigned DRIVER STATION, as indicated on the team sign. Any control devices worn or held by their HUMAN PLAYERS and/or DRIVERS during the MATCH must be disconnected from or set on or beside the OPERATOR CONSOLE before the MATCH can begin. A DRIVE TEAM obstructing or delaying OPERATOR CONSOLE setup is at risk of violating [G301](#).

For the purposes of FIRST Robotics Competition, any device connected to the OPERATOR CONSOLE is considered a control device because REFEREES are not expected to differentiate between devices that can or cannot control the ROBOT.

### 6.3.3 ROBOTS

DRIVE TEAMS stage their ROBOT in accordance with [G303](#). A DRIVE TEAM obstructing or delaying ROBOT setup requirements is at risk of violating [G301](#).

If order of placement matters to either or both ALLIANCES, the ALLIANCE notifies the Head REFEREE during setup for that MATCH, and the Head REFEREE instructs ALLIANCES to alternate placement of ROBOTS. In a Qualification MATCH, REFEREE instructions are that ROBOTS are placed in the following order:

1. red DRIVER STATION 1 ROBOT
2. blue DRIVER STATION 1 ROBOT
3. red DRIVER STATION 2 ROBOT

4. blue DRIVER STATION 2 ROBOT
5. red DRIVER STATION 3 ROBOT
6. blue DRIVER STATION 3 ROBOT

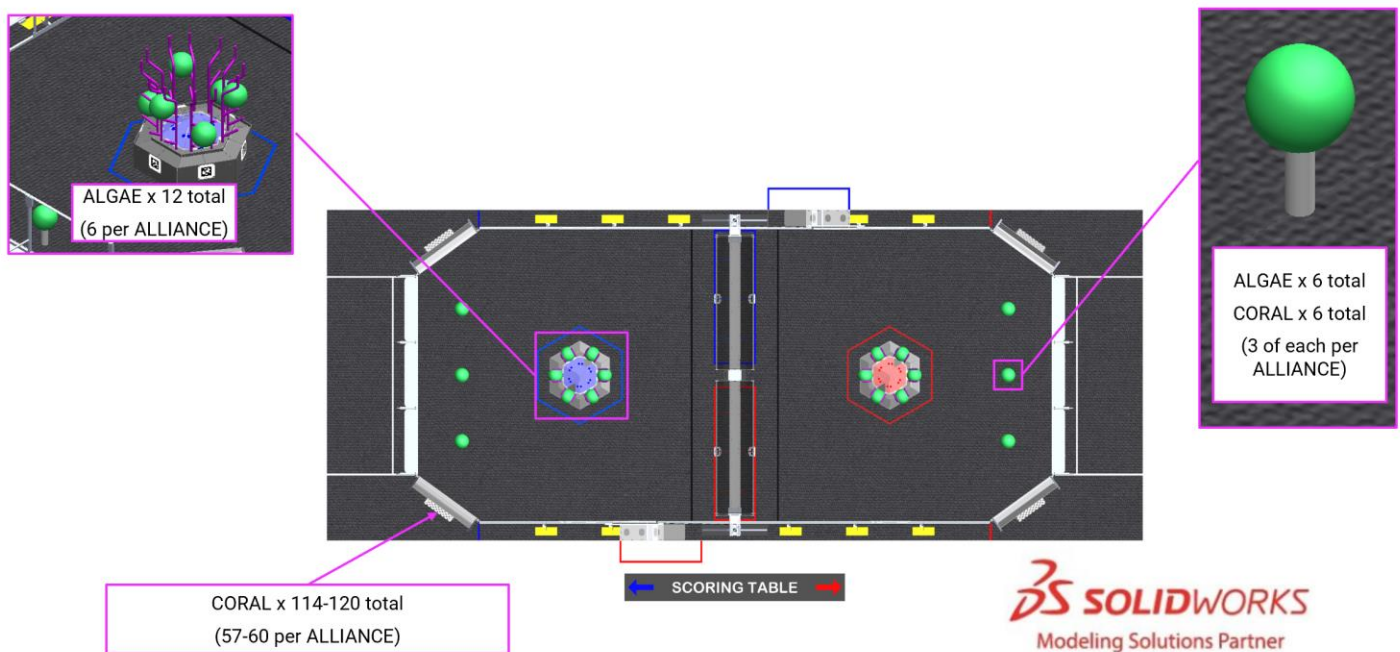
In an intra-Division Playoff MATCH, the same pattern is applied, but instead of blue ALLIANCE placing last, the higher seeded ALLIANCE (regardless of color) places last. For inter-Division Playoff MATCHES, the ALLIANCE that places last is determined by a (real or virtual) coin flip facilitated by the Head REFEREE where a “heads” result invites the red ALLIANCE to place last.

FIELD STAFF may ask teams to indicate their intended location and are not required to wait for a team to stage their ROBOT in its exact location before moving to the next team.

### 6.3.4 SCORING ELEMENTS

Before each MATCH begins, FIELD STAFF stage SCORING ELEMENTS.

Figure 6-2 CORAL MARK locations and SCORING ELEMENT staging positions



#### 6.3.4.1 CORAL

126 CORAL are staged for each MATCH as follows (reference [Figure 6-2](#)):

- A. 1 CORAL is staged on each CORAL MARK (6 total, CORAL are staged such that each CORAL covers the opposite ends of each CORAL MARK),
- B. 1 CORAL may be preloaded in each ROBOT by the ROBOT’S DRIVE TEAM, such that the CORAL is fully supported by the ROBOT (up to 6 total, a CORAL not pre-loaded in a ROBOT is staged with CORAL in the corresponding ALLIANCE AREA), and
- C. remaining CORAL are split evenly behind each CORAL STATION (57 to 60 per ALLIANCE, depending on how many are preloaded in ROBOTS).

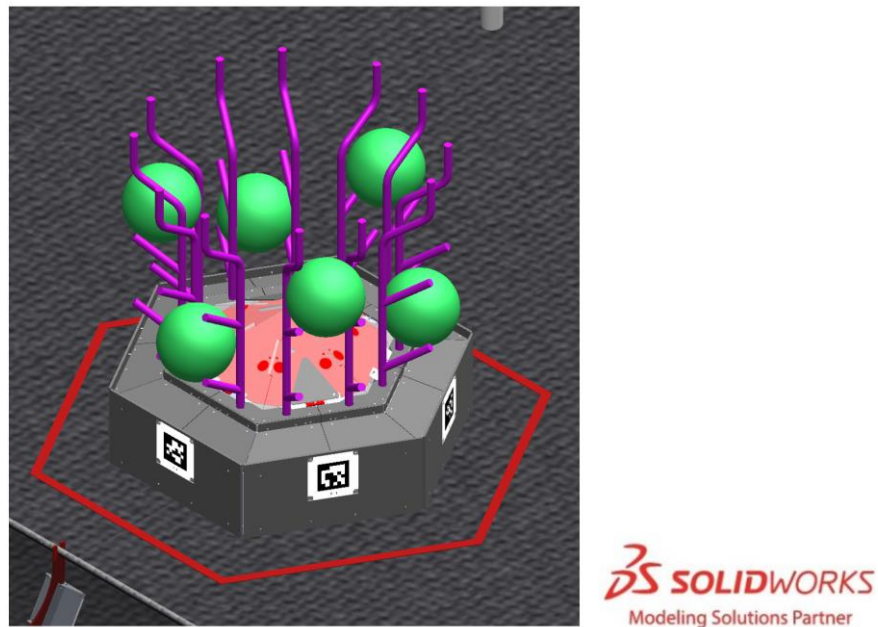


### 6.3.4.2 ALGAE

18 ALGAE are staged for each MATCH as follows (reference [Figure 6-2](#)):

- A. 6 ALGAE are staged on pairs of BRANCHES as shown in [Figure 6-3](#) (12 total), and
- B. 1 ALGAE is placed on top of each CORAL staged on a CORAL MARK (6 total).

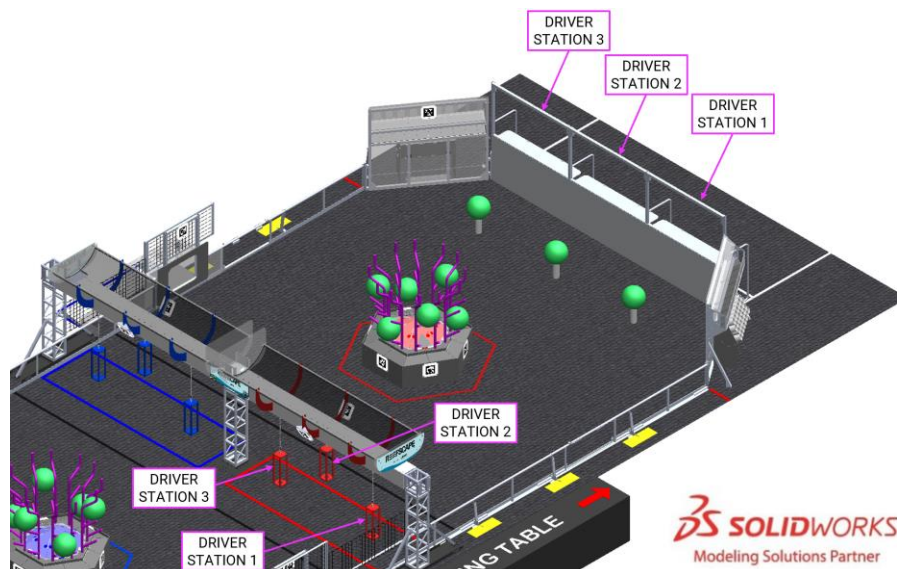
Figure 6-3 Staging positions for ALGAE on a REEF



### 6.3.5 CAGES

Each team can choose the height of the CAGE closest to their driver station. By default, all CAGES are left in the state from the last match. At the start of each day, all CAGES are set as deep CAGES. If a team would like to alter the CAGE height they must alert the FIELD STAFF during reset. Each team informs FIELD STAFF of their preference for their corresponding CAGE height.

Figure 6-4 CAGE positions corresponding to DRIVER STATIONS



## 6.4 MATCH Phases

The first phase of each MATCH is 15 seconds long and called the Autonomous Period (AUTO). During AUTO, ROBOTS operate without any DRIVE TEAM control or input. ROBOTS attempt to leave their ROBOT STARTING LINE, score SCORING ELEMENTS, and retrieve SCORING ELEMENTS. There is a 3-second delay between AUTO and TELEOP for scoring purposes as described in section [6.5 Scoring](#).

The second phase of each MATCH is the remaining 2 minutes and 15 seconds (2:15) and called the Teleoperated Period (TELEOP). During TELEOP, DRIVERS remotely operate ROBOTS to retrieve and score SCORING ELEMENTS and climb their CAGES.

## 6.5 Scoring

ALLIANCES are rewarded for accomplishing various actions throughout a MATCH, including LEAVING their ROBOT STARTING LINE, scoring CORAL on their REEF, scoring ALGAE in their PROCESSOR and NET, climbing CAGES, and winning or tying MATCHES.

Rewards are granted either via MATCH points, *Coopertition* points, or Ranking Points (often abbreviated to RP, which increase the measure used to rank teams in the Qualification Tournament).

All scores are assessed and updated throughout the MATCH, except as follows:

- A. assessment of CORAL scored on the REEF and ALGAE scored in the PROCESSOR or NET continues for up to 3 seconds after the ARENA timer displays 0:00 following AUTO.
- B. assessment of CORAL scored on the REEF and ALGAE scored in the PROCESSOR or NET continues for up to 3 seconds after the ARENA timer displays 0:00 following TELEOP.
- C. assessment of CAGE points is made 3 seconds after the ARENA timer displays 0:00 following TELEOP, or when all ROBOTS have come to rest following the conclusion of the MATCH, whichever happens first.

LEAVING the ROBOT STARTING LINE, CORAL scoring, ALGAE scoring in the NET, PARKING and CAGE points are all evaluated and scored by human volunteers. Teams are encouraged to make sure that it is obvious and unambiguous that the criteria are met.

### 6.5.1 SCORING ELEMENT Scoring Criteria

A CORAL is scored in the trough (L1) of the REEF if it is not in contact with a ROBOT and

- A. contacting the trough, or
- B. fully or partially supported by a CORAL in contact with the trough.

Figure 6-5 Examples of CORAL scored in the trough (L1)

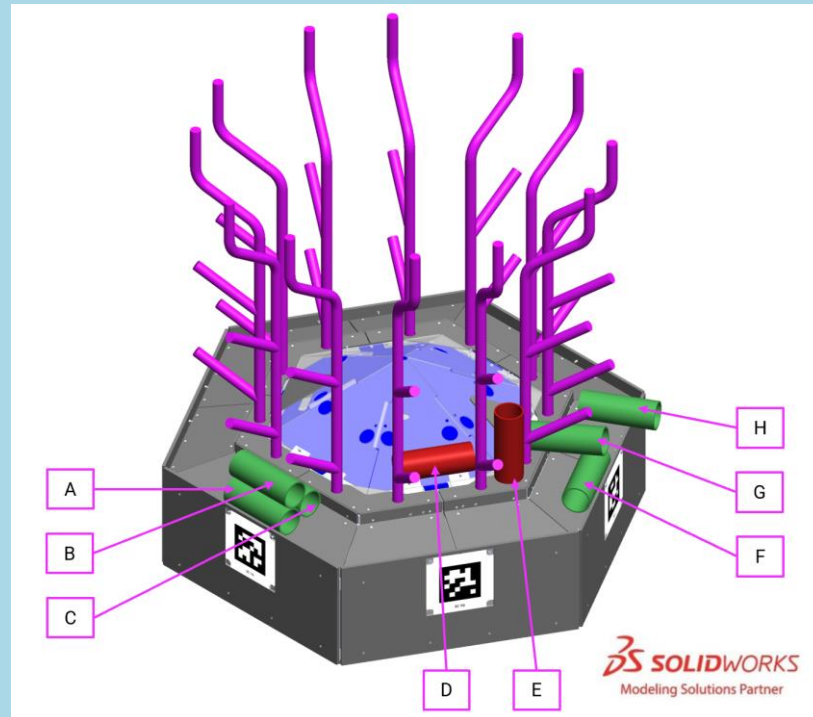


Figure 6-5 includes examples of CORAL on the REEF at the conclusion of a MATCH.

- A. CORAL A, C, F, and H are scored because they meet criteria A.
- B. CORAL B and G are scored because they meet criteria B.
- C. CORAL D and E do not meet any criteria for trough scoring.

A CORAL is scored on L2-L4 BRANCH if the BRANCH is inside the volume of the CORAL and the CORAL is not in contact with a ROBOT or an ALGAE. Only 1 CORAL can be scored per BRANCH.

An ALGAE is scored in a PROCESSOR once it has passed through the opening of the PROCESSOR and by the sensor array. An ALGAE is scored in a NET if it is above the NET and within the perimeter of the NET.

If a CORAL scored in AUTO gets removed from a BRANCH during TELEOP, the AUTO points are removed. If a CORAL is scored in that location again, the AUTO points associated with the original scored CORAL is restored. CORAL scored in the trough is not tracked by specific location, if a CORAL is removed from the trough after AUTO, the points removed will correspond to the lowest scoring CORAL (i.e. TELEOP CORAL removed first); if CORAL is re-scored in the trough, points will be re-added in the reverse order (i.e. AUTO CORAL re-added first).

### 6.5.2 ROBOT Scoring Criteria

To qualify for LEAVE points, a ROBOT must move such that its BUMPERS no longer overlap its ROBOT STARTING LINE at the end of AUTO.

To qualify for PARK points, a ROBOT'S BUMPERS must be partially or completely contained in their BARGE ZONE at the end of the MATCH and does not meet the criteria for CAGE points.

To qualify for CAGE points, a ROBOT must be contacting a CAGE (with the exception of the ANCHOR), not contacting the carpet, and may additionally contact only the following elements:

- A. SCORING ELEMENTS,

- B. another ROBOT qualified for CAGE points,
- C. a partner ROBOT contacted by an opponent in violation of [G428](#), and
- D. an opponent ROBOT.

### 6.5.3 Coopertition Bonus

In Qualification MATCHES, if both ALLIANCES score at least 2 ALGAE in their PROCESSOR, all teams earn 1 *Coopertition* Point, and the threshold for the CORAL RP decreases as described in [Table 6-2](#).

See section [10.5.3 Qualification Ranking](#) for more information about *Coopertition* influence on Qualification Ranking order.

### 6.5.4 Point Values

Point values for tasks in REEFSCAPE are detailed in [Table 6-2](#).

Table 6-2 REEFSCAPE point values

		MATCH points		Ranking Points	Coopertition Points
		AUTO	TELEOP		
<b>LEAVE</b>		3			
<b>CORAL</b>	CORAL scored in trough (L1)	3	2		
	CORAL scored on L2 BRANCH	4	3		
	CORAL scored on L3 BRANCH	6	4		
	CORAL scored on L4 BRANCH	7	5		
<b>ALGAE</b>	scored in PROCESSOR	6	6		
	scored in NET	4	4		
<b>BARGE</b>	PARK in the BARGE ZONE		2		
	off-the-ground via shallow CAGE		6		
	off-the-ground via deep CAGE		12		
<b>Coopertition Bonus</b> – at least 2 ALGAE scored in each PROCESSOR					1
<b>AUTO RP</b> - all enabled ROBOTS LEAVE and at least 1 CORAL scored in AUTO				1	
* <b>CORAL RP</b> - If at least 5 CORAL scored on each level. If <i>Coopertition</i> achieved, at least 5 CORAL scored on at least 3 levels.				1	
* <b>BARGE RP</b> - at least 14 BARGE points are scored				1	
<b>Win</b>	completing a MATCH with more MATCH points than your opponent			3	
<b>Tie</b>	completing a MATCH with the same number of MATCH points as your opponent			1	
*For District Championship and/or FIRST Championship events, the CORAL or BARGE RP requirement may increase.					

## 6.6 Violations

Upon any instance of a rule violation, unless otherwise noted, 1 or more of the penalties listed in [Table 6-3](#) are assessed. All rules throughout the Game Rules section are called as perceived by a REFEREE.



Table 6-3 Rule violations

Penalty	Description
<b>MINOR FOUL</b>	a credit of 2 points towards the opponent's MATCH point total
<b>MAJOR FOUL</b>	a credit of 6 points towards the opponent's MATCH point total
<b>YELLOW CARD</b>	issued by the Head REFEREE for egregious ROBOT or team member behavior or rule violations. A subsequent YELLOW CARD within the same tournament phase results in a RED CARD.
<b>RED CARD</b>	issued by the Head REFEREE for egregious ROBOT or team member behavior or rule violations which results in a team being DISQUALIFIED for the MATCH.
<b>DISABLED</b>	the state in which a ROBOT is commanded to deactivate all outputs, rendering the ROBOT inoperable for the remainder of the MATCH.
<b>DISQUALIFIED</b>	the state of a team in which they receive 0 MATCH points and 0 Ranking Points in a Qualification MATCH or causes their ALLIANCE to receive 0 MATCH points in a Playoff MATCH
<b>VERBAL WARNING</b>	a warning issued by event staff or the Head REFEREE.

### 6.6.1 YELLOW and RED CARDS

In addition to rule violations explicitly listed throughout this document, YELLOW CARDS and RED CARDS are used in FIRST Robotics Competition to address team and ROBOT behavior that does not align with the mission, values, and culture of FIRST.

The Head REFEREE may assign a YELLOW CARD as a warning, or a RED CARD for egregious behavior inappropriate at a FIRST Robotics Competition event.

A YELLOW or RED CARD is indicated by the Head REFEREE holding a YELLOW and/or RED CARD in the air while the Game Announcer describes the violation.

YELLOW CARDS are additive, meaning that a second YELLOW CARD is automatically converted to a RED CARD. A team is issued a RED CARD for any subsequent incident in which they receive an additional YELLOW CARD, including earning a second YELLOW CARD during a single MATCH. A second YELLOW CARD is indicated by the Head REFEREE holding a YELLOW CARD and RED CARD in the air simultaneously after the completion of the MATCH. A team that has received either a YELLOW CARD or a RED CARD carries a YELLOW CARD into subsequent MATCHES, except as noted below.

Once a team receives a YELLOW or RED CARD, a yellow rectangle will show next to the team number on the audience display during subsequent MATCHES, including any replays.

Figure 6-6 Example audience screen graphic showing YELLOW CARD indicators



All YELLOW CARDS are cleared in FMS at the conclusion of Practice, Qualification, and division Playoff MATCHES. VERBAL WARNINGS issued by the head REFEREE are cleared after Practice MATCHES and persist from Qualification MATCHES through subsequent tournament phases.

### 6.6.2 YELLOW and RED CARD application

YELLOW and RED CARDS are applied based on the following:

Table 6-4 YELLOW and RED CARD application

Time YELLOW or RED CARDS earned:	MATCH to which CARD is applied:
Prior to Qualification MATCHES	REFEREES may or may not be present during Practice MATCHES. With input from event staff, The Head REFEREE may opt to perpetuate a VERBAL WARNING or YELLOW CARD earned prior to Qualification MATCHES to the first Qualification MATCH for particularly egregious behavior.
during the Qualification MATCHES	team's current (or just-completed) MATCH. In the case where the team participated as a SURROGATE in the current (or just completed) MATCH, the card is applied to the team's previous MATCH (i.e. the team's second Qualification MATCH)
between the end of Qualification MATCHES and the start of Playoff MATCHES	ALLIANCE'S first Playoff MATCH
during the Playoff MATCHES	ALLIANCE'S current (or just-completed) MATCH

Please see examples of the application of YELLOW and RED CARDS as shown in section [6.6.4 Violation Details](#).

### 6.6.3 YELLOW and RED CARDS during Playoff MATCHES

During Playoff MATCHES, YELLOW and RED CARDS are assigned to the violating team's entire ALLIANCE instead of to only the violating team. If an ALLIANCE receives 2 YELLOW CARDS, the entire ALLIANCE is issued a RED CARD which results in DISQUALIFICATION for the associated MATCH. If both ALLIANCES receive a RED CARD, the ALLIANCE assessed the first RED CARD, chronologically, is DISQUALIFIED and loses the MATCH.

### 6.6.4 Violation Details

There are several styles of violation wording used in this manual. Below are some example violations and a clarification of the way the violation would be assessed. The examples shown do not represent all possible violations, but rather a representative set of combinations.

Table 6-5 Violation examples

Example Violation	Expanded Interpretation
MINOR FOUL	Upon violation, a MINOR FOUL is assessed against the violating ALLIANCE.

Example Violation	Expanded Interpretation
<b>MAJOR FOUL and YELLOW CARD</b>	Upon violation, a MAJOR FOUL is assessed against the violating ALLIANCE. After the MATCH, the Head REFEREE presents the violating team with a YELLOW CARD.
<b>MINOR FOUL per additional SCORING ELEMENT. If egregious, YELLOW CARD</b>	Upon violation, a number of MINOR FOULS are assessed against the violating ALLIANCE equal to the number of additional SCORING ELEMENTS beyond the permitted quantity. Additionally, if the REFEREES determine that the action was egregious, the Head REFEREE presents the violating team with a YELLOW CARD after the MATCH.
<b>MINOR FOUL. MAJOR FOUL IF REPEATED</b>	Upon initial violation in a MATCH, a MINOR FOUL is assessed against the violating ALLIANCE. If the ALLIANCE ROBOT repeats the infraction in the MATCH, a MAJOR FOUL is assessed against the violating ALLIANCE. Assuming no additional infractions of that rule by that ROBOT in that MATCH, the ROBOT has “earned” a MINOR FOUL and a MAJOR FOUL for their ALLIANCE.
<b>MAJOR FOUL, and for every 3 seconds in which the situation is not corrected, a MAJOR FOUL is assessed</b>	Upon violation, a MAJOR FOUL is assessed against the violating ALLIANCE and the REFEREE begins to count. Their count continues until the criteria to discontinue the count are met, and for each 3 seconds within that time, an additional MAJOR FOUL is assessed against the violating ALLIANCE. A ROBOT in violation of this type of rule for 15 seconds receives a total of 4 MAJOR FOULS (assuming no other rules were being simultaneously violated).
<b>RED CARD for the ALLIANCE</b>	After the MATCH, the Head REFEREE presents the violating ALLIANCE with a RED CARD in the following fashion: <ul style="list-style-type: none"> <li>• In a PLAYOFF MATCH, a single RED CARD is assessed to the ALLIANCE.</li> <li>• In all other scenarios, each team on the ALLIANCE is issued a RED CARD.</li> </ul>

## 6.7 Head REFEREE and FTA Interaction

The Head REFEREE has the ultimate authority in the ARENA during the event, but may receive input from additional sources, e.g. Game Designers, FIRST personnel, FTA, and other event staff. The Head REFEREE rulings are final. No event staff, including the Head REFEREE, will review video, photos, artistic renderings, etc. of any MATCH, from any source, under any circumstances.

### 6.7.1 Question Box (Q)

Each ALLIANCE has a designated Question Box near the scoring table. If a DRIVE TEAM has a question about a MATCH, the FIELD, etc., they may send 1 DRIVE TEAM member to their corresponding Question Box. Depending on timing, the Head REFEREE or FTA may postpone any requested discussion until the end of the subsequent MATCH.

Technical questions regarding FIELD or ROBOT operation are addressed by the FTA, and additional team members are invited to participate in these conversations if necessary. If a DRIVE TEAM needs clarification on a ruling or score, per [Q101](#), 1 STUDENT from that DRIVE TEAM should address the Head REFEREE after the ARENA Reset Signal (e.g. FIELD lights turn green).

While FMS tracks quantities of MINOR and MAJOR FOULS, *FIRST* instructs REFEREES to not self-track details about MINOR FOULS and MAJOR FOULS; as a result, REFEREES are not expected to recall details about what MINOR FOULS and MAJOR FOULS were made, when they occurred, and against whom.

Any reasonable question is fair game in the Question Box, and Head REFEREES will make good faith efforts to provide helpful feedback (e.g. how/why certain MINOR FOULS are being called, why a particular ROBOT may be susceptible to certain MINOR FOULS based on its design or game play, how specific rules are being called or interpreted), but please know that they may not be able to supply specific details.

**Q101** **\*1 STUDENT, 1 Head REFEREE.** A team may only address the Head REFEREE with 1 STUDENT. The STUDENT may not be accompanied by more than 1 silent observer.

*Violation: The Head REFEREE will not address additional, non-compliant team members or peripheral conversations.*

Some events may restrict ARENA access to members of the DRIVE TEAM. Team members are permitted to swap buttons within their team as needed to access the Question Box.

Laws regarding recording of conversations vary state-to-state and country-to-country, and, in some cases, recording without consent may be criminal. Introducing the idea of recording a conversation with an implied reason of proving someone's error can escalate a discussion and is likely to increase its adversarial nature. Sometimes it's appropriate; often it's neither appropriate nor constructive.

Please do not record *FIRST* event staff, or anyone at an event, without the person's consent and please do not challenge the decision to decline consent to be recorded. *FIRST* event staff are empowered to excuse themselves from an interaction in which they are being recorded after declining consent.

## 6.8 Other Logistics

SCORING ELEMENTS that leave the FIELD, other than ALGAE via the PROCESSOR, are placed back into the FIELD approximately at the point of exit by FIELD STAFF (REFEREES, FTAs, or other staff working around the FIELD) at the earliest safe opportunity.

Note that, except for ALGAE via the PROCESSOR, ROBOTS may not deliberately cause SCORING ELEMENTS to leave the FIELD (see [G407](#)).



An ARENA FAULT (an error in ARENA operation described in section [10.2 MATCH Replays](#)) is not called for MATCHES that accidentally begin with damaged SCORING ELEMENTS. Damaged SCORING ELEMENTS are not replaced until the next ARENA reset period. DRIVE TEAMS should alert the FIELD STAFF to any missing or damaged SCORING ELEMENTS prior to the start of the MATCH.

Once the MATCH is over and the Head REFEREE determines that the FIELD is safe for FIELD STAFF and DRIVE TEAMS, they or their designee change the FIELD lights to green and DRIVE TEAMS may retrieve their ROBOT.

During ARENA reset, the ARENA is cleared of ROBOTS and OPERATOR CONSOLES from the MATCH that just ended, ROBOTS and OPERATOR CONSOLES for the subsequent MATCH are loaded into the ARENA by DRIVE TEAMS, and FIELD STAFF reset ARENA elements.

FIRST Robotics Competition uses 3 words in the context of how durations and actions are assessed with regards to evaluation of rules and assignment of violations. These words provide general guidance to describe benchmarks to be used across the program. It is not the intent for REFEREES to provide a count during the time periods.

- MOMENTARY describes durations that are fewer than approximately 3 seconds.
- CONTINUOUS describes durations that are more than approximately 10 seconds.
- REPEATED describes actions that happen more than once within a MATCH.



