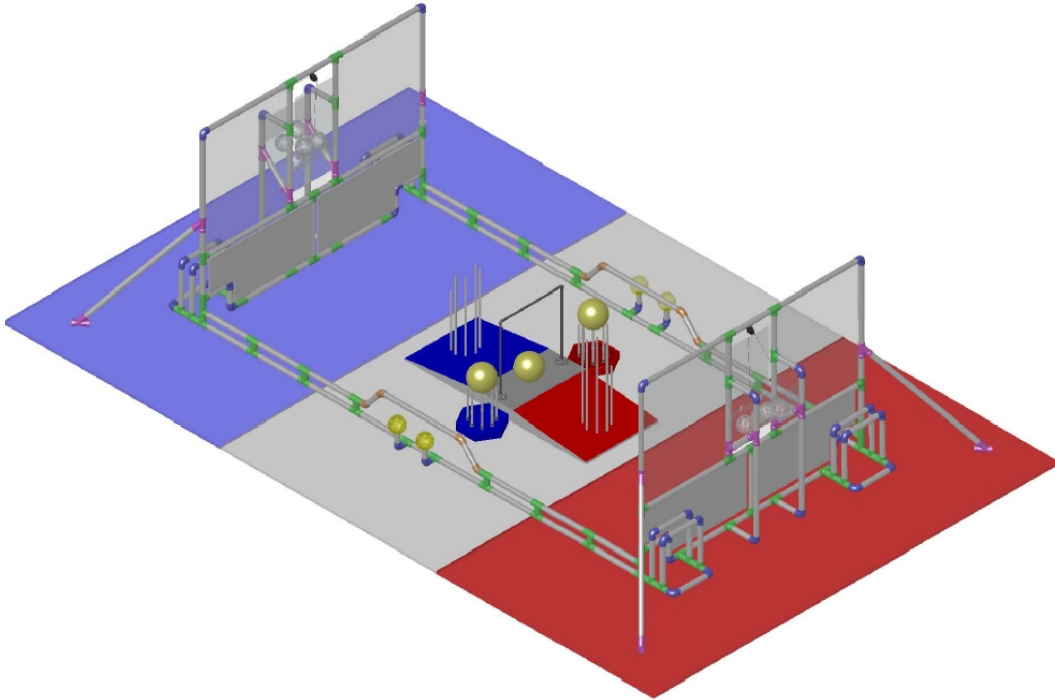


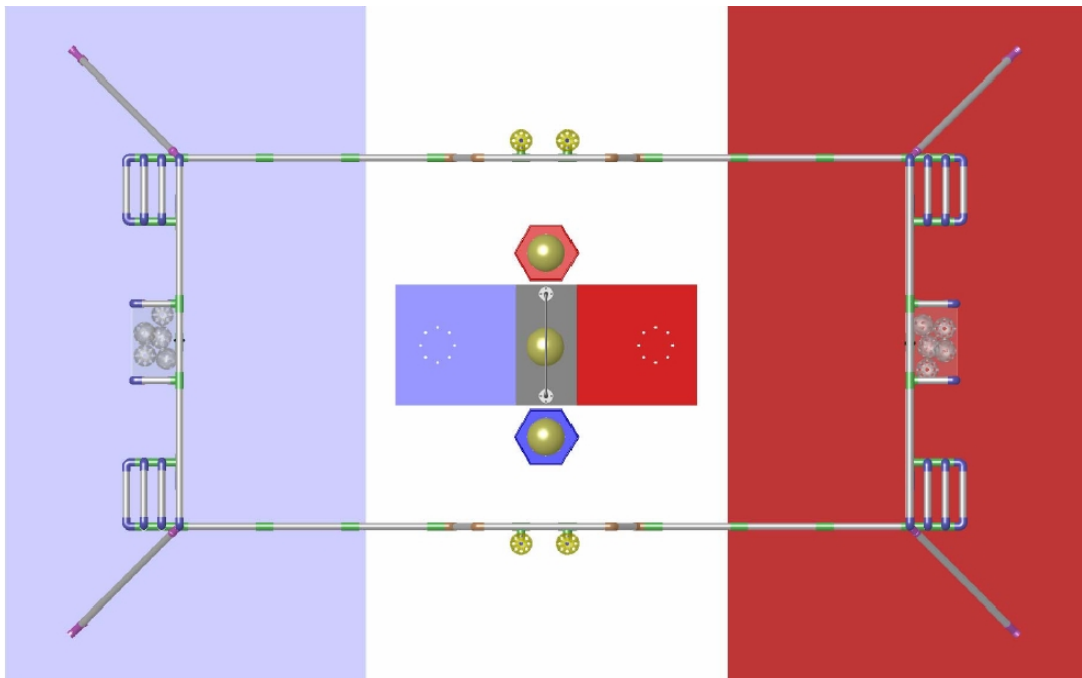
4 THE GAME

4.1 GAME OVERVIEW

The object of the game is to attain a higher score than your opponent alliance by working as a team with your alliance partner to deliver balls into goals, cap goals with larger balls, and/or hang you robots from the Pull-Up Bar at the end of the round of competition. The point values for each of those actions are explained below.



FIRST VEX Challenge is played on a field initially set up as illustrated in the figure below. Two alliances comprised of two teams compete in each match.



4.2 PLAYING FIELD

The playing field construction, materials, and dimensions are detailed in the Arena Section of this manual.

4.3 DEFINITIONS

ROBOT – Anything (which has passed inspection) that a team places on the field prior to the start of a match.

SMALL – Softball size waffle balls that are approximately 12 inches in circumference and are white in color and are made of plastic.

BONUS – Softball size waffle balls that are approximately 12 inches in circumference and are yellow in color and are made of plastic.

LARGE – Balls that are inflated to approximately 10 inches in diameter and are made from yellow rubber.

COACH – A student or adult mentor designated as the team advisor during the match and identified as the person wearing a “COACH” pin.

DRIVER – A pre-college student team member responsible for operating and controlling the ROBOT.

HUMAN PLAYER – A pre-college student team member designated as the only team member permitted to throw SMALL balls onto the field.

SCORED – A SMALL ball is SCORED when it is contained within a goal or SUPPORTED only by the goal and/or other SCORED SMALL balls. A ball is not considered SCORED if it is touching a ROBOT of that alliance or is SUPPORTED by a structural part of the field other than the goal.

CAPPING – A LARGE ball is considered to be CAPPING a goal if it is SUPPORTED by the goal poles and/or SCORED SMALL Balls. A LARGE ball is not considered to be CAPPING a goal if it is touching an alliance ROBOT (of that goal’s color) or is SUPPORTED by more than one goal or a structural part of the field.

SUPPORTED – If the “supporting object” is removed, the ball would not remain SCORED or CAPPED and/or the ROBOT would not remain HANGING.

GOALTENDING – A ROBOT cannot interfere with a SMALL ball on its downward flight toward a goal or within a goal.

HANGING – A ROBOT is considered HANGING from the Pull-Up Bar if it is directly SUPPORTED by the horizontal bar and is not touching the carpet, platforms, or goals.

BALL TEE – A post, which SUPPORTS the BONUS BALL at the start of the match.

TEAM ZONE – The colored portion of tiles located beside the field.

END ZONE – The colored portion of tiles located behind the operating station.

4.4 MATCH FORMAT

A match is 2 minutes long. At the start of the match, all HUMAN PLAYERS, DRIVERS and COACHES must be at their designated Driver’s Station. The Driver Station controls will be activated at the start of the match and students may remotely control and operate their ROBOTS.

4.5 RULES

4.5.1 Scoring

- A SCORED SMALL ball is worth 5 points.
- A SCORED BONUS ball is worth 10 points.
- A LARGE ball CAPPING a goal doubles the SMALL balls SCORED within that goal. Small Balls may only be doubled once.
- A ROBOT HANGING from the Pull-Up Bar at the end of a match is worth 20 points.

4.5.2 Safety

<G01> ***ALL STUDENTS, MENTORS, OR OFFICIALS ON OR AROUND THE PLAYING FIELD MUST BE WEARING SAFETY GLASSES AT ALL TIMES!!!***

<G02> If a ROBOT goes out-of-bounds (outside the playing field) to the point where it has to apply a force to any out-of-bounds surface to rejoin play, its control system will be disabled and the ROBOT will be disabled. For purposes of this rule, the BONUS BALLS and BALL TEE are considered part of the playing field.

<G03> A ROBOT will be disabled if the ROBOT operation is deemed unsafe.

<G04> Team members may not extend any part of their bodies into any part of the playing field. Violating this rule will result in the disabling of the team's ROBOT and the team will be disqualified.

<G05> HUMAN PLAYERS may be passed or handed balls but otherwise cannot be aided by any object or other person. Violating this rule will result in the disabling of the team's ROBOT and the team will be disqualified.

4.5.3 General Match Rules (GM)

<G06> At the beginning of a match, each ROBOT must be located in their designated End Zone. A ROBOT can start in either Alliance starting position; drivers must setup under their team number.

<G07> Each drive team will include one HUMAN PLAYER, two DRIVERS, and one COACH must remain in their END ZONE for the entire match. The remaining team members may stand in the TEAM ZONE along the side of the field.

<G08> All team members must stay within their alliance's designated END ZONE or TEAM ZONE during the match. A team that leaves their END ZONE or TEAM ZONE during the match, will be assessed a 10-pt penalty unless such action was deemed by the referee to be so serious to have affected the outcome of the match, in which case the robot will be disabled and DQ'd.

<G09> The Ball Release will release an alliance's SMALL balls when both BONUS balls are removed from the TEEs closest to the Ball Release (they are located on opposite sides of the field, closest to the associated ball release). If the Ball Release is not activated by the alliance, the balls will be released 30 seconds into the match. Each alliance Ball Release acts independently from the other alliance's Ball Release.

- <G10> ROBOTS can only pass the SMALL and/or BONUS balls into the END ZONE via the Ball Corral. Any team member may handle or pass the SMALL balls to either HUMAN PLAYER on their alliance.
- <G11> SMALL and/or BONUS balls may only be SCORED by the HUMAN PLAYER's direct throw or by SMALL and/or BONUS balls falling unabated from the Ball Release into a Mobile Goal. If any other team member throws a SMALL and/or BONUS ball into the field during a match, that team's ROBOT will be disabled and the team will be disqualified.
- <G12> ROBOTS cannot SCORE or de-SCORE SMALL and/or BONUS balls.
- <G13> If an alliance ROBOT assists any SMALL and/or BONUS ball into either of their goals, the referee will throw a red or blue 10-point penalty flag for each occurrence.
- <G14> ROBOTS cannot GOALTEND either the Mobile or Stationary Goals. If a ROBOT GOALTENDs or de-SCORES any SMALL and/or BONUS ball, the referee will throw a red/green or blue/green 10-point penalty flag for each occurrence.
- <G15> In the case of goal tending and assisting, while the ROBOT is manipulating a large ball, it is considered an extension of the ROBOT.
- <G16> SMALL and/or BONUS balls that leave the playing field or team zone are considered out of play and will not be deliberately returned to play.
- <G17> Any LARGE balls that leave the playing field during a match will be returned to the playing field as soon as possible. The LARGE ball will be placed near the location where it exited the field as quickly as practical.
- <G18> A LARGE ball capping a goal doubles the small balls scored within that goal. SMALL balls may only be doubled once.
- <G19> ROBOTS can push the mobile goals and may not latch on in any way. No part of a ROBOT can extend under the base of the Mobile Goals. ROBOTS may never grab or attach to the poles. Provided there is no damage to the field, a robot may push against the mobile goal base, the PVC pipes, or the Large Ball to maneuver the Mobile Goal. If a ROBOT grabs any other part of the Mobile Goal or extends under the base of the Mobile Goal, the referee will give one warning. If the referee decides that the team is disregarding that warning, the team's ROBOT will be disabled and the team will be disqualified.
- <G20> If ROBOTS intentionally tip over any Mobile Goal or damage the poles of a Mobile or Stationary Goal, that team's ROBOT will be disabled and the team may be disqualified.
- <G21> A ROBOT can only block 1 Ball Corral at a time. A referee will throw a 10-point penalty flag for violating this rule and has the option of throwing additional penalty flags if the robot continues to violate this rule.
- <G22> A ROBOT cannot pin (inhibit the movement of another robot while on the field) for more than 10 seconds. If a robot has been pinned for 10 seconds, the team with the pinning ROBOT will be told by the referee to release the ROBOT and back away approximately 3 feet. Once the pinning ROBOT has backed off by 3 feet, it may again attempt to pin its opponent and, if successful, the 10 second count starts over. If a referee determines this rule to be violated, a 10-point penalty flag will be thrown for each violation.

- <G23> If any part of a ROBOT is in a Ball Corral (breaks the vertical plane of the Operator's station wall), a referee will throw a 10-point penalty flag. The ROBOT operator and the Human Player have a shared responsibility to avoid contact. If a team member touches the offending ROBOT, that team's ROBOT will be disabled. If a ROBOT pushes another ROBOT to break the plane, the pushing ROBOT will be assessed the penalty. If a human player touches a ROBOT that has been pushed into the Ball Corral, the pushing ROBOT and the pushed ROBOT will be disabled.
- <G24> If a Human Player touches a Mobile Goal that has been pushed into the Ball Corral, his / her team will be assessed a 10-point penalty for each occurrence.
- <G25> During a match, the ROBOTS may be remotely operated only by the students. If a coach touches his/her team's controls anytime during a match, that team will be disabled and DQ'd.
- <G26> A referee may disable a ROBOT that has damaged the playing field, barriers or another ROBOT, if the referee feels that further damage is likely to occur. The referees may require a corrective action, such as eliminating a sharp edge, before the ROBOT will be allowed to compete in subsequent matches. Repeat offenses will result in that team being disqualified.
- <G27> Strategies aimed solely at the destruction, damage, tipping over or entanglement of ROBOTS are not in the spirit of the FIRST VEX Competition and are not allowed. Accidental tipping over of a ROBOT is not considered damaging and may be allowed at the discretion of the referees. Intentional stabbing, cutting, etc., is illegal. If a breach of this rule occurs, the team will be disqualified for that match. Repeated offenses could result in a team being disqualified from the remainder of the event.
- <G28> A ROBOT may not impede the opening of the Ball Release door to prevent the release of small balls.
- <G29> A ROBOT is considered HANGING from the pull-up bar when the entire robot can be elevated from the platform at the end of the match and remaining hanging when the power is lost at the match ending buzzer.