CIJE-Tech High School

Robotics Competition 2026-2027

OVERRIDE

CENTER FOR INITIATIVES IN JEWISH EDUCATION

VEX® and VEX Robotics are registered trademarks of Innovation First, Inc.

Copyright © 2026. The contents of this game manual are the property of VEX Robotics, Inc.

All Rights Reserved.



Revision A, 07/15/2026

The Center for Initiatives in Jewish Education (CIJE)

The Center for Initiatives in Jewish Education (CIJE) strengthens and enriches the quality of education in Jewish schools throughout the United States. CIJE is investing in our nation's future by providing beneficiary schools with cutting-edge technology, engaging curricula, and vital support so that students can acquire the skills they need to excel in our global society. Currently, CIJE has more than 245 beneficiary schools across the United States and programs which span grades K-12. CIJE's innovative programs are paving the way for the achievement and success of tomorrow's leaders and thinkers.

CIJE-TECH STEM PROGRAM: AN OVERVIEW

More than ten years ago, the Center for Initiatives in Jewish Education began the implementation of various STEM programs in elementary Jewish schools. The success of these programs brought about the initiation of the CIJE-Tech Principles in Engineering and Applied Engineering programs.

Goals:

The CIJE STEM education programs:

- Provides a challenging and rigorous program of study focusing on the application of STEM subjects.
- Offers courses and pathways for preparation in STEM fields and oc*Cup*ations.
- Bridges and connects in-school and out-of-school learning opportunities.
- Provides opportunities for student exploration of STEM related fields and careers.
- Prepares students for successful college and university STEM education.

To increase STEM learning, the CIJE-Tech programs include activities that improve student and teacher content knowledge and teacher pedagogical skills. Innovative strategies are used, including small group collaborative work and the use of hands-on activities and experiments to promote inquiry and curiosity. Learning is connected to the real world through an emphasis on the application of STEM subjects to everyday life, employment, and the surrounding environment.

The CIJE high school programs were approved as "d" Laboratory Science Courses by the University of California in 2015. The second-year course is approved at the more challenging honors *Level*.

Center for Initiatives in Jewish Education

President	Jason Cury
Vice President	Philip Brazil
Vice President, Education Administration	Faigy Ravitz
Director, Curriculum Development	Adam Jerozolim, M.E.
Director, Innovation	Orly Nadler, M.A.

CIJE STEM Specialists:

Aryeh Laufer
Barbara Sehgal, M.A.
Christopher Auger-Dominguez
David Seay, M.A.
Dewain Clark, M.A.
Joseph Saltzman, M.S.
Karen Sinai, M.S.

VEX and VEX Robotics are registered trademarks of Innovation First, Inc.
Copyright © 2026. The contents of this game manual are the property of VEX Robotics, Inc.
All Rights Reserved.

Summary provided by:

Center for Initiatives in Jewish Education
148 39th Street, Suite A311, Brooklyn, NY, 11232
info@theCIJE.org
212-757-1500 Phone
212-757-1565 Fax

This program was produced with the generous support of the Center for Initiatives in Jewish Education (CIJE) as part of its ongoing quest to achieve excellence in education.

Robotics Competition

Game Rules

2026-2027



SUMMARY **5**

ROBOTS RULES **5**

GAME RULES **8**

GAMEPLAY RULES **14**

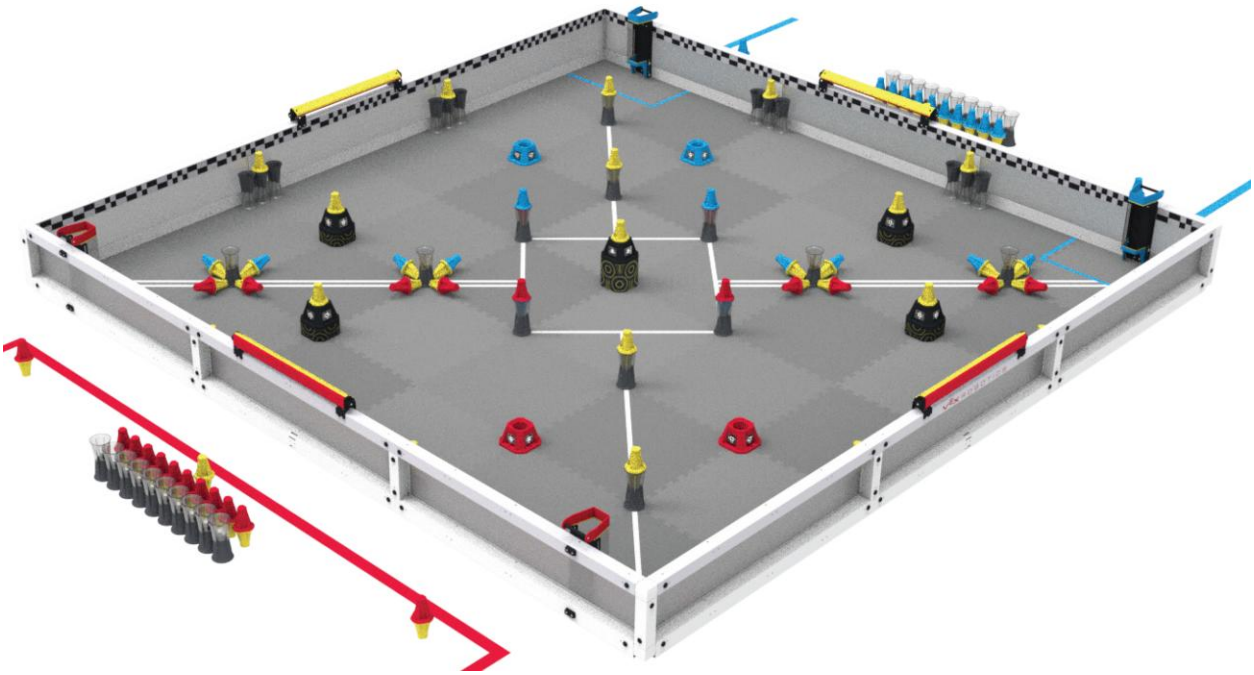
TOURNAMENT STYLE **15**

Summary

VEX V5 Robotics Competition Override is played on a 12'x12' square *Field*, set up as illustrated in the figures throughout.

Two (2) *Alliances*—one (1) "red" and one (1) "blue"—composed of two (2) *Teams* each, compete in *Matches* consisting of a one minute and forty-five second (1:45) *Driver Controlled Period*.

The object of the game is to attain a higher score than the opposing *Alliance* by stacking *Pins* and *Cups* on *Goals*, setting *Toggles* to your *Alliance* color, and ending the *Match* with your *Robot* in the contested *Midfield*.



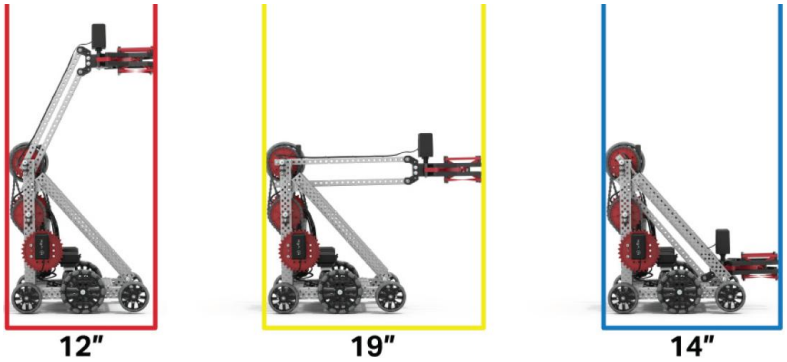
All disputes are to be decided at the head referee's discretion.

Robots Rules

1. At the tournament, before any matches begin, a competing robot must be qualified by the tournament referee before it can compete.
2. Robots must fit in a 18"x18"x18" box when the competition begins. Robots may not use power when being measured. See expansion rules below regarding once the match begins.

   Each team will undergo an official measurement before they can compete. Teams that do not meet the dimensional requirements will not be allowed to compete until the size is corrected.

3. Expansion: During the match, a robot may expand up to 24" x 24" horizontally, and up to 50" vertically.
4. Robots are not allowed to over-expand horizontally, even temporarily, while transitioning to their maximum vertical height:



This is how to correctly raise an arm while staying within horizontal limits

5. Robots may be built ONLY using official VEX V5 components, unless otherwise specifically noted within these rules. Product pages on the VEX Robotics website should be used as the official definitive source for determining if a product is a "V5 component."
6. Products from the VEXpro, VEX EXP, VEX IQ, VEX GO, VEX 123, or VEX Robotics by HEXBUG* product lines cannot be used for Robot construction, unless specifically allowed by a clause below, or "cross-listed" as part of the VEX V5 Product lines.
7. Physical modifications, such as bending or cutting, of legal metal structure or plastic components are permitted.
8. Robots must have a colored indicator (e.g. – plaque, flag, clip, etc.) indicating if they are on the blue or red *Alliance*. CIJE will provide indicators at the tournament for those teams that need.
9. The colored *Alliance* indicators are considered decorative and can thus be made from any materials. They may not add functionality in any way regarding game play.
10. Any of rope/string may be used, no thicker than 1/4" (6.35 mm).
11. Any zip ties may be used.
12. Any rubber bands may be used, up to a ½ inch wide.
13. Any screws, nuts, bolts, washers, standoffs, spacers, and mechanical fasteners, up to size #8 (M4), and up to 2.5" (63.5 mm) in length, may be used.
14. Mechanical fasteners may be secured using Loctite or a similar thread-locking product.
15. Small amounts of grease or lubricating compound may be used. Grease or lubricant may not be in excess to leak or drip onto the floor or game pieces at any time of the competition.
16. Hot glue for securing cable connections may be used.
17. There is no weight limit on the robot.
18. The robot must be wireless and may not have any connections (e.g. - wired, mechanical, string) to the drivers or competitors.
19. Robots may not intentionally detach parts during the match or leave mechanisms on the field.
20. Robots may only use one (1) VEX V5 Robot Brain.

21. Robots may be controlled by up to two (2) V5 Controllers.
22. Robots may use up to eight (8) standard VEX V5 11W smart motors (276-4840).
    a) Smaller 5.5W smart motors (276-4842), may be substituted at a 2:1 ratio (for a potential total of 16 smaller motors).
23. The V5 Radio should be mounted such that no metal surrounds the radio symbol on the V5 Radio. This will ensure constant communication with the robot.
24. Robots may use only one (1) V5 Robot Battery (276-4811), or Vex approved equivalent, and no other power sources.
25. V5 Wireless Controllers may only be powered by their internal rechargeable battery.
26. Custom V5 Smart Cables using non-VEX 4P4C connectors and 4P4C crimping tools are permissible. This includes soldering and repairing VEX brand cabling. Teams who create custom cables acknowledge that incorrect wiring may have undesired results and cause permanent damage to V5 electronics.



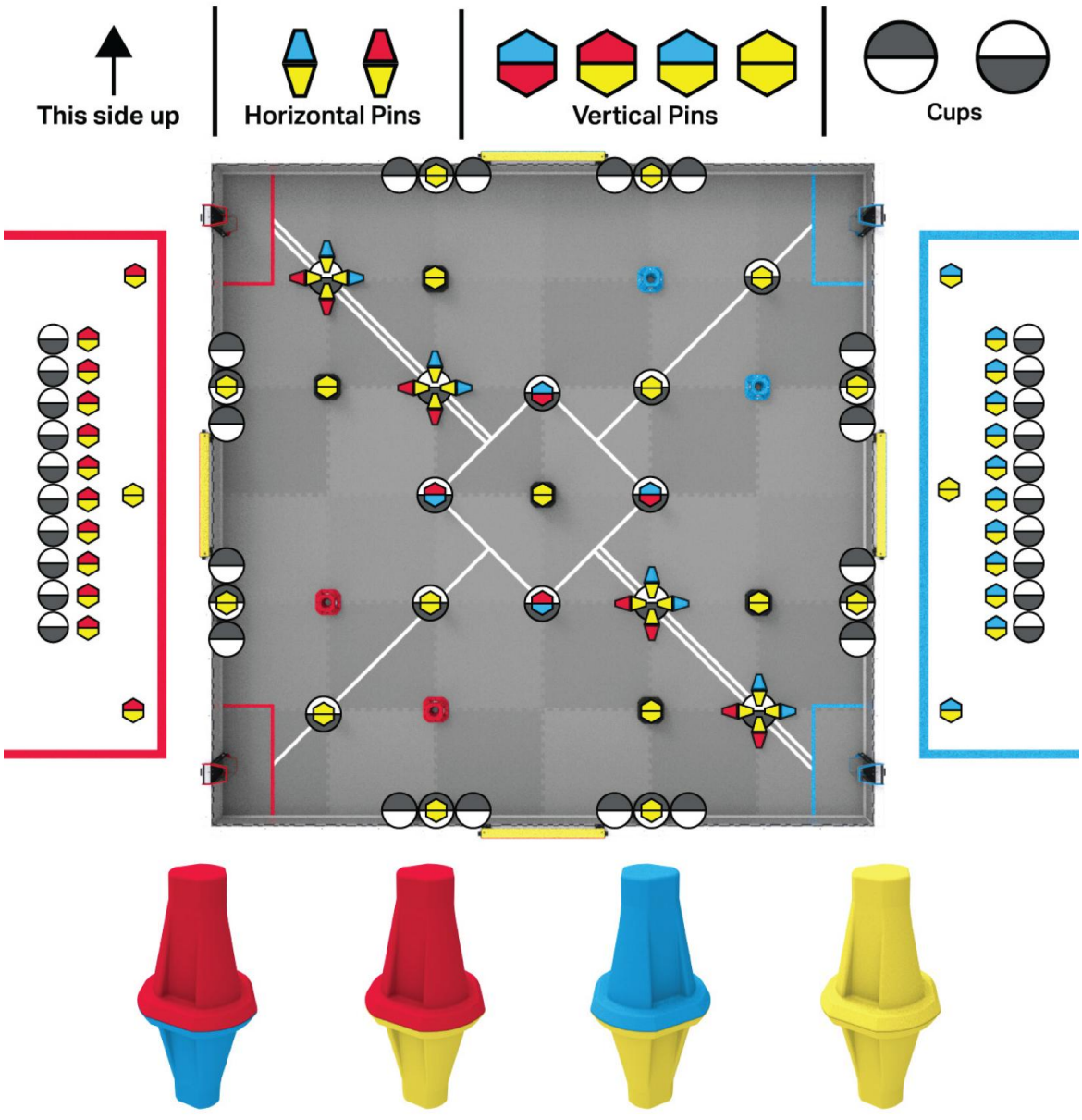
27. 3D printing may only be used to replace or replicate an already approved VEX component. Non-functional decorations are approved in rule 31.
28. The V5 pneumatic kit (SKU 276-8750) may be used. A maximum of two (2) legal VEX pneumatic air reservoirs may be used on a Robot, charged to a maximum of 100 psi. A pressure gauge must be included and visible.
29. The compressed air contained inside a pneumatic subsystem can only be used to actuate legal pneumatic devices (e.g., cylinders).
30. No modifications to electronic (other than wires) or pneumatic components are allowed.
31. Robots may use up to 12 pieces of custom plastic, each no larger than 4” x 8” x 0.070”.
    a) Plastic sheets purchased from VEX would fall under this same allotment, regardless of their size.
    b) Size and quantity limitations include non-functional decorative plastic. There is no distinction for this rule.
    c) Plastic must be non-shattering, such as polycarbonate (Lexan), acetal monopolymer (Delrin), acetal copolymer (Acetron GP), POM (acetal), ABS, PEEK, PET, HDPE, LDPE, Nylon (all grades), Polypropylene, PTFE, and FEP.
    d) The intent for this rule is to allow the modification of full sheets of purchased plastic, and not to allow 3D printing of flat sheets, or custom sheets, of plastic.
    e) Shattering plastic, such as PMMA (also called Plexiglass, Acrylic, or Perspex), is prohibited.
32. Mechanisms and components that could (1) potentially damage playing field objects, (2) potentially damage other competing robots, or (3) pose an unnecessary risk of entanglement are not allowed.

33. Teams may add non-functional decorations, 3D prints, or lights made of any materials, provided they do not affect the robot's performance in any way or affect the outcome of the match.

Game Rules

34. The V5RC Override Field consists of the following:

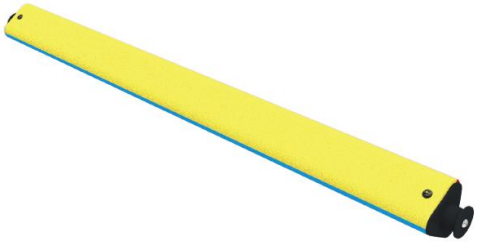
- 56 *Cups* (with one clear side and one darkened gray side)
- 63 *Pins*
- 9 *Goals* (4 *Alliance* colored and 5 black neutral colored)
- 4 *Toggles*
- 4 Loaders



Pin - A *Scoring Object* measuring approximately 1.6" in diameter and 6.5". Each *Pin* consists of two halves; red, blue, or yellow.



Cups consist of two halves (transparent and opaque) and are used to hold *Pins*



Toggles: placed on each wall, are used to indicate which *Alliance* "owns" the yellow *Pins* in that quadrant



4 **Loaders** are used to introduce Match Load *Pins* and *Cups*

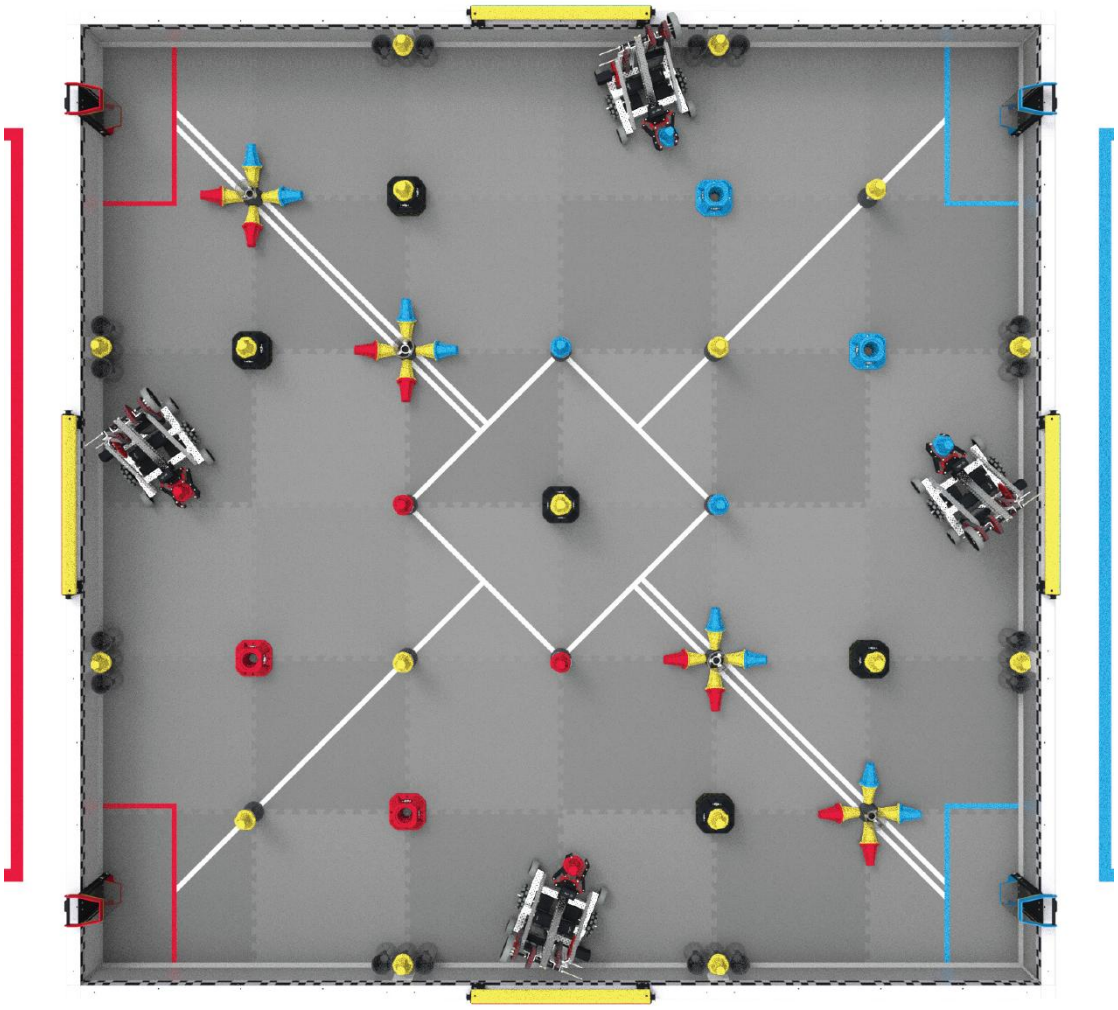
35. **Starting:** Robots must start the match:

a) In contact with a wall.

b) Either of the two walls nearest your *Alliance's Goals*.

c) One robot per wall.

d) Not in contact with any *Goals*, Loaders, Load Zones, *Toggles*, or Scoring Objects (besides a preload).



36. **Preload:** Each robot receives 1 preload. Red *Alliance* Preloads are red/yellow *Pins* and blue *Alliance* Preloads are blue/yellow *Pins*.
37. If a Robot is not present for their Match, then that Robot's Preload may be used as a Match Load.

Scoring

Points are scored by placing *Pins* in stacks on top of *Goals*:

38. **Only *Placed Pins* can potentially earn points.** A *Pin* is considered *Placed* if it meets the following criteria:
    a) The *Pin* is partially or entirely nested in a *Goal*, or
    b) The *Pin* is partially or entirely nested within a *Cup* that is on top of a *Placed Pin*. (A *Pin* inside a *Cup* that is resting on the floor is not *Placed*)
39. **A *Placed Pin* that is also in a *Goal* is called *Scored*, and can earn points:**

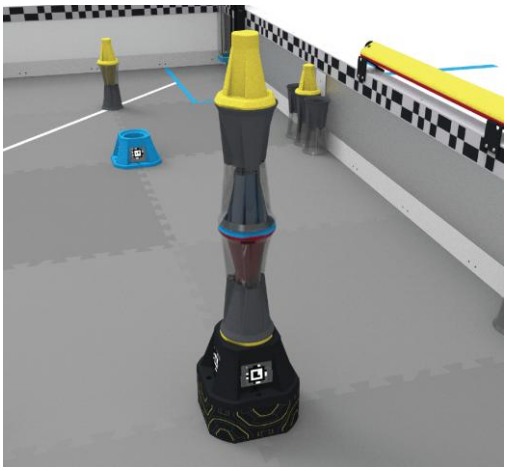
Pin	Points
Each *Scored Alliance*-colored *Pin*	5 Points
Each *Scored* yellow *Pin*	10 Points

(Additional points can be scored by parking in the *Midfield*, as explained later on).



Goal - One of the nine (9) designated locations around the *Field* in which *Robots* attempt to score *Pins* and *Cups*. You cannot touch P*ins* in an opponent's/Neutral *Goals*

40. To count as Scored for the corresponding *Alliance*, the half of the *Placed Pin* must remain fully visible (i.e., cannot be partially or fully nested inside the black half of a *Cup*). **It does not matter what color the *Goal* is, only the color of the visible *Pin*.**
41. A *Cup*/*Goal* can only contain one *Pin* half.



All *Pins* are *Placed*. Only visible ones are Scored.

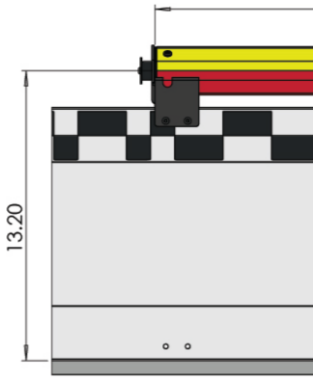


Horizontal *Pin* is NOT *Placed* since the *Cup* contains 2 *Pins* simultaneously

42. Each visible yellow half of a *Scored Pin* is owned by an *Alliance* if the *Toggle* in that *Quadrant* is set to the *Alliance's* color

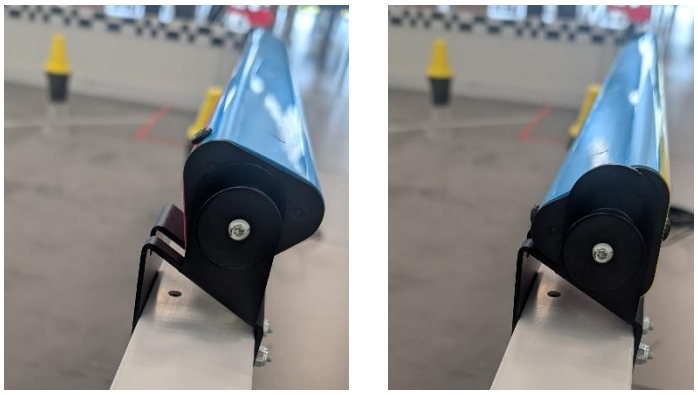


The Red *Alliance* gets points for the Yellow *Pins* since the *Toggle* is set to Red



The *Toggle* is positioned 13.20" above the floor

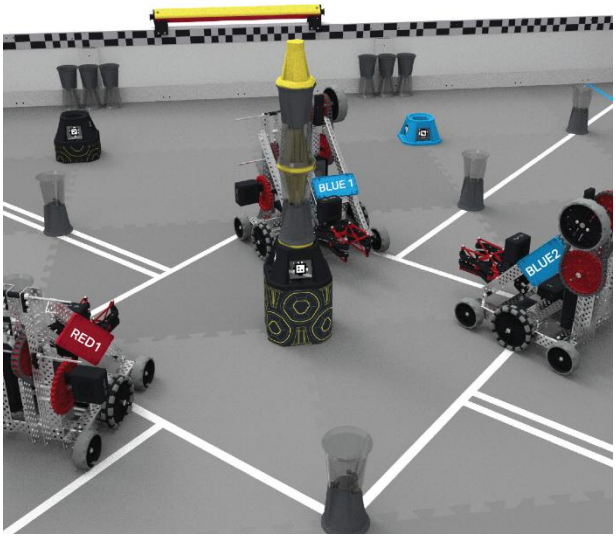
43. A *Toggle* is considered set to a color when it meets all of the following criteria:
    a) The *Toggle* must be fully seated.
    b) No robot is touching the *Toggle*.



Only the *Toggle* on the right is fully seated

44. A *Toggle* not set is considered Yellow (Neutral) and no Yellow *Pins* in that *Quadrant* receive points.

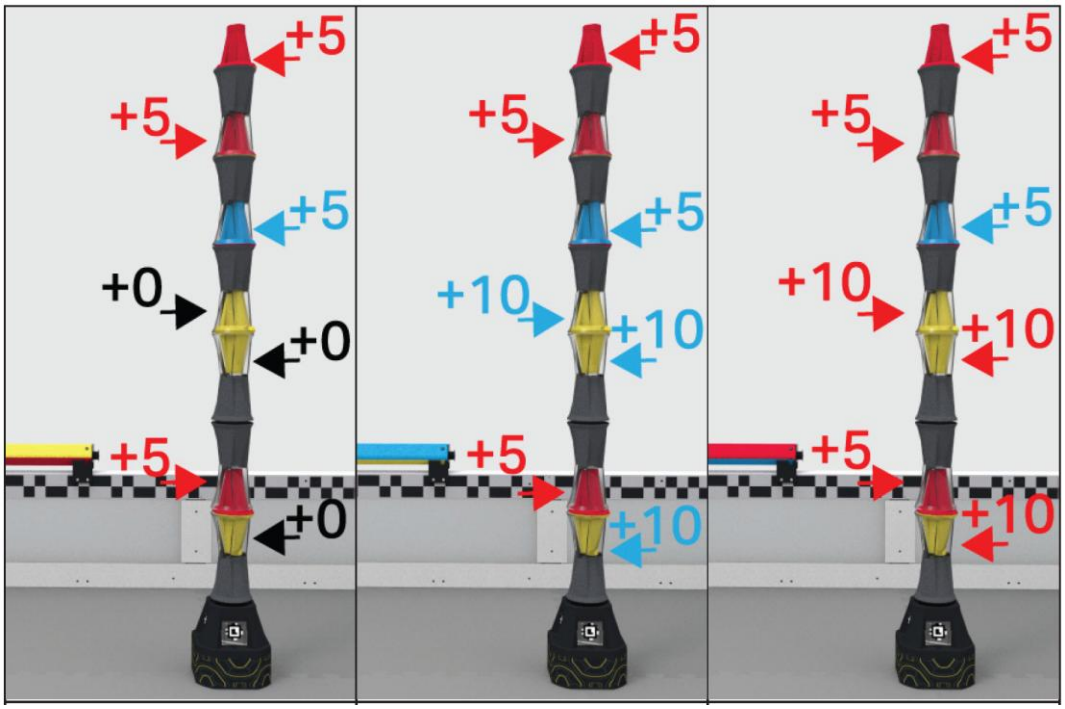
45. A yellow *Pin* Scored in the Midfield is *Owned* by the *Alliance* that ends the *Match* with a greater number of *Robots* in the *Midfield*. If tie, yellow *Pins* in the *Midfield* do not score points.



The blue *Alliance* has more Robots in the Midfield, therefore owns the yellow *Pins* there

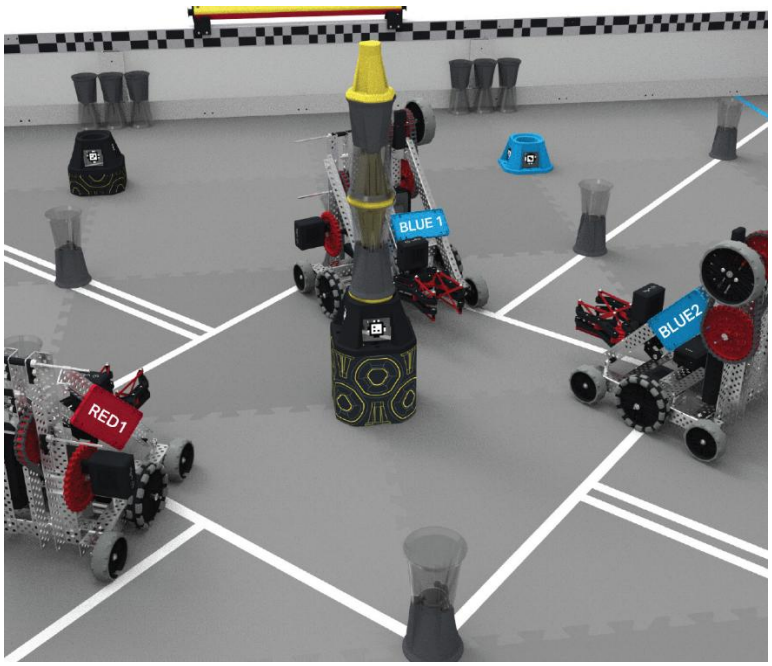
46. *Robot* contact does not nullify a *Placed Pin*
47. Each *Placed Pin* can have zero, one or two Scored halves, depending on visibility.

Example Scoring Scenarios

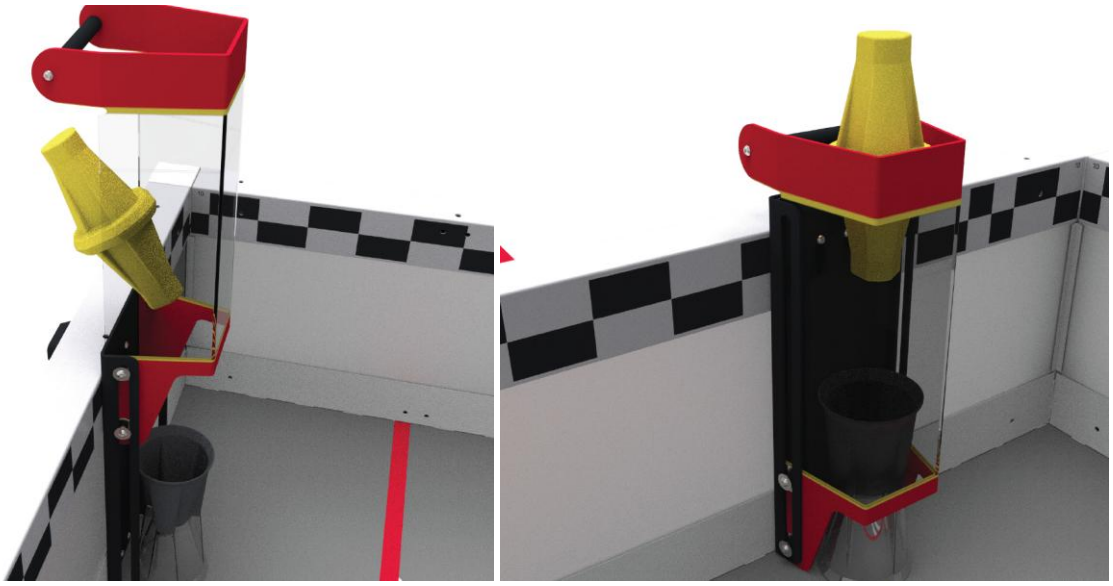


A visible *Pin* that is *Scored* (*Placed* in a stack that is in a *Goal*) earns 5 points if it's your *Alliance* color, and 10 points if it's yellow and you own the *Toggle*

48. **Parking:** A Robot counts as being in the Midfield, and earns 8 points at the end of the match, if any part of the Robot is within the Midfield at the end of the Match.
49. During the final 10 seconds of a match, Robots attempting to park may engage in otherwise restricted vigorous interactions, such as pushing, tipping, or entanglement.



50. Possession is limited to a maximum of one *Pin* and one *Cup*.
51. Plowing multiple Scoring Objects is permitted. Plowing involves pushing with a flat face of a robot, with no concave surfaces or ability to change an element's direction.
52. Colored *Alliance Goals* are protected. Robots may not:
    a) remove Pins from opposing *Alliance*-colored *Goals*
    b) directly or indirectly interact with opposing *Alliance*-colored *Goals*
    c) make contact with Scoring Objects stacked on the *Goal*
    d) strategically cover or block the *Goal*
53. *Placed* Scoring Objects cannot be removed from *Neutral* or *Opposing Goals*.
54. **Match Loads:** Once a match starts, Drive Team Members may introduce Match Load Scoring Objects by placing a single *Pin*, a single *Cup*, or a nested *Cup* and *Pin* into either of their *Alliance*-colored Loaders. Scoring Objects can be introduced through the top of the Loader when the Loader is not lifted, or through the back of the Loader when the Loader is raised by a Drive Team Member.
55. Match Load Scoring Objects may only be removed by a Robot whose *Alliance* color matches the Loader.



Scoring Objects can be introduced through the top of a lowered Loader, or the back or a raised Loader

56. Teams may not intentionally remove Scoring Objects from the Field. A Scoring Object that leaves the Field will be returned to the Field in a location near where it left.
57. Load Zones are protected during the match, and robots:
    a) may only enter an opposing *Alliance* Load Zone momentarily
    b) may not touch an opposing *Robot* while it's touching its Load Zone

Gameplay Rules

58. You cannot voluntarily remain in the same square for more than 5 seconds if it affects game play.
59. A Robot may not Hold an opposing Robot for more than a "5-count" (approximately 5 seconds) as counted out and approximated by the referee. A Robot is considered to be Holding if it meets any of the following criteria during a Match:
    a) Trapping - Limiting the movement of an opponent Robot to a small or confined area of the field, approximately the size of one foam field tile or less, without an avenue for escape. Note that if a Robot is not attempting to escape, it is not considered Trapped.
    b) Pinning - Preventing the movement of an opponent Robot through contact with the Field Perimeter, a Field or Game Element, or another Robot.
    c) Lifting - Controlling an opponent's movements by raising or tilting the opponent's Robot off of the foam tiles.
60. It's the referee's discretion to determine when a Hold is Released.
61. No human competitor may touch anything within the arena, including their own robot, during a match. Even a minor infraction will lead to full disqualification for that match for that robot. If part of the robot inadvertently extends outside the arena it may not be touched as well.
62. Strategies aimed solely at the destruction, damage, tipping over, or entanglement of opposing robots are not allowed. If deemed to be intentional the offending robot may be disqualified from that match.
63. If a robot is completely out-of-bounds (outside the playing field), it is up to the referee's discretion to return the robot to the field. Team drivers may not touch the robot.
64. A competitor may only "drive" for one robot throughout the day. Even if other robots belong to the same school as the competitor, he/she may only drive for one of them.
65. A team (a specific group of students) may not switch robots during a competition. This includes adding or amending to their robot so that it behaves in a significantly different manner or capability. The competition referee will decide all matters pertaining to changing robots during a competition.
66. **Code of conduct:** Treat everyone with respect. All students, teachers, mentors and adults associated with a school are expected to conduct themselves in a respectful and positive manner while participating in the CIJE-Tech Robotics Tournament. If person(s) are deemed to be disrespectful or uncivil to staff, volunteers, or fellow teams at an event, the team can be disqualified from their current or upcoming match.
67. If the adult team leader feels there has been an error regarding tournament play, he/she may bring it exclusively to the attention of the head referee without involving students. Their decision will be final say in the matter.

Tournament Style

68. Multiple robots from the same school do not behave as a team or affect each other's scores. For the purposes of the competition each robot is judged independently. There is no school average, combined school score, or school team.

69. Robots, and Alliances, will be chosen at random. Multiple robots in the arena may be from the same school. Alliances will be changed after each match.

70. The 16 robots with the top personal scores after all qualifying rounds have been played will advance to the semi-finals.

71. Robot ranking is determined using Win Points (WP on the scoreboard)

    a) Two (2) WP's are awarded for winning a Qualification Match.

    b) One (1) WP is awarded for tying a Qualification Match.

    c) Zero (0) WP's are awarded for losing a Qualification Match.

72. A tie in Win Points is then decided using Strength of Schedule Points (SP on the scoreboard). SP Points are the sum of the scores of the losing *Alliances* in your Matches. A higher SP score indicates that you played tougher opponents than someone with equal Win Points as you. (A further tie is decided by highest match score).

73. The top sixteen (16) Robots will compete in a seven (7) match bracket style playoff, as indicated in the bracket below, to determine the winning *Alliance.*



74. At any given event, the number of Qualification Matches or Playoff Alliances may change due to limiting factors such as time or available Robots.

75. Playoff *Alliances* will be determined as follows:

    Alliance 1: Robot #1 and Robot #9 *Alliance* 2: Robot #2 and Robot #10

    Alliance 3: Robot #3 and Robot #11 *Alliance* 4: Robot #4 and Robot #12 *Etc.*

76. The hosting school will be required to have their robot in the designated tournament area for the duration of the tournament. They may bring tools and supplies to the tournament area.