VEX Robotics Competition
“Over Under”
Game Discussion
Grant Cox
Game Design Committee
WELCOME

Topics

Game Overview / Field Tour videos
New rule highlights
Notable Early Season Q&A’s
Meet the Facilitator

Grant Cox
Chairman of the VEX GDC

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<td>Open for questions / conversation</td>
<td>A formal “Q&amp;A” with the GDC</td>
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FIELD TOUR
2023-2024
New Rules

Holding

Holding - A Robot status. A Robot is considered to be Holding if it meets any of the following criteria during a Match:

- **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.

- **Pinning** - Preventing the movement of an opponent Robot through contact with the Field Perimeter, a Field or Game Element, or another Robot.

- **Lifting** - Controlling an opponent’s movements by raising or tilting the opponent’s Robot off of the foam tiles.
New Rules

Holding

No Holding for more than a 5-count. A Robot may not Hold an opposing Robot for more than a 5-count during the Driver Controlled Period.

For the purposes of this rule, a “count” is defined as an interval of time that is approximately one second in duration, and “counted-out” by Head Referees verbally.

A Holding count is over when at least one of the following conditions is met:

a. The two Robots are separated by at least two (2) feet (approximately one foam tile).

b. Either Robot has moved at least two (2) feet away (approximately 1 tile) from the location where the Trapping or Pinning count began.
   i. In the case of Lifting, this location is measured from where the Lifted Robot is released, not from where the Lifting began.

c. The Holding Robot becomes Trapped or Pinned by a different Robot.
   i. In this case, the original count would end, and a new count would begin for the newly Held Robot.

d. In the case of Trapping, if an avenue of escape becomes available due to changing circumstances in the Match.

After a Holding count ends, a Robot may not resume Holding the same Robot again for another 5-count. If a Team resumes Holding the same Robot within that 5-count, the original count will resume from where it ended.
New Rules

Return Triballs to Match Load Zones

<SG3> Keep Triballs in the field. Triballs that leave the field during Match play, whether intentionally or unintentionally, will be returned to the field by being placed in a Match Load Zone nearest the point at which they exited.

a. Referees will return Triballs to the field when it is deemed safe to do so, at their discretion.

b. This action is not considered a “Match Load”, i.e., the stipulations in rule <SG6> do not apply, For example, the Triball cannot be placed directly onto a Robot.

c. Incidental contact with other Triballs that are already in the Match Load Zone may occur, although referees will make a concerted effort not to do so.

d. The Triball may be placed on top of other Triballs that are already in the Match Load Zone if necessary, e.g., if Triballs are already covering the entire Match Load Zone foam tile region.

e. At their discretion, referees may also direct a nearby Drive Team Member or other volunteer to return the Triball to a specific Match Load Zone. However, this should never be done by Drive Team Members proactively without referee acknowledgment.

Note: Triballs which come to rest on top of a Goal may be retrieved by a Drive Team Member from the Alliance Station adjacent to the Goal in question. The Triball is then considered a Match Load for the Alliance who retrieved the Triball. This momentary interaction is an exception to rule <G9>.
New Rules

Goal Tolerance

<T10> Be prepared for minor field variance. Field Element tolerances and Triballs may vary from specified locations / dimensions; Teams are encouraged to design their Robots accordingly. Please make sure to check Appendix A for more specific nominal dimensions and tolerances.

a. Field Element tolerances may vary from nominal by up to ±1.0”

b. The opening of the Goal between the PVC pipe and the foam field tiles has a dimensional tolerance of +0.25” / -0.00”.

c. Triball weights may vary from nominal by up to ±20 grams.

Helpful Tips to Ensure Proper Goal Performance

Making sure the Goals for Over Under are appropriately built, assembled, and performing properly is crucial to gameplay. Here are some tips to make sure that Goals are built properly and interact with Triballs as intended.

1. Make sure the field walls are sitting flush to the ground and not leaning. There should be no gaps between the field walls and the ground. Please refer to the figures later in the appendix to see how the field walls and field tiles are supposed to fit together.

2. Make sure the signs are fully inserted into the bases that assemble to the field tiles. This can be measured by making sure the length of the pipe coming out of the base matches the dimensions provided in this appendix. Event Partners should periodically check this joint to ensure the Goal is not rising up out of the base over the course of an event.

3. After assembly, manipulate a Triball by hand to ensure there is a slight interference between the Goal and the Triball around the entire perimeter of the Goal. If Triballs ride in without

Appendix A - page A5
New Rules

The Event Partner has ultimate authority regarding all non-gameplay decisions during an event. The Game Manual is intended to provide a set of rules for successfully playing VRC Over Under; it is not intended to be an exhaustive compilation of guidelines for running a VEX Robotics Competition event. Rules such as, but not limited to, the following examples are at the discretion of the Event Partner and should be treated with the same respect as the Game Manual.

- Venue access
- Pit spaces
- Health and safety
- Team registration and/or competition eligibility
- Team conduct away from competition fields

This rule exists alongside <G1>, <S1>, and <G3>. Even though there isn’t a rule that says “don’t steal from the concession stand,” it would still be within an Event Partner’s authority to remove a thief from the competition.
New Rules
VEX U (Head-to-Head)

Same same, but different...
- Starting tiles
- Preloads
- Autonomous zones
- Match Load introductions
- Match Load availability
- Autonomous Win Point
New Rules
VEX U (Robot Skills Challenge)

Same same, but different...
- Starting tiles
- Match Load introductions
- Elevation Tiers
New Rules

VEX U (Robot Rules)

b. One Robot must be smaller than 24” x 24” x 24” at the start of the Match.

c. One Robot must be smaller than 15” x 15” x 15” at the start of the Match.

**Note:** The remaining VEX U Robot rules will be released in a future game manual update. For the purpose of early-season designs, prototyping, and scrimmages, the rules from the [22-23 VEX U Game Manual](#) may be used.
Notable Early Season Q&A’s

Location of Driver Station Posts and Field Monitor

Pascal Chesnais (Event Partner)  28-Jun-2023

I have not found a recommended location for field monitors and drive station posts either for portable field or metal competition perimeters. In past seasons, it was clear where to mount them.

This season - what are the recommended locations?

T22  T23  T24

Answered by committee  7-Jul-2023

Thank you for your question. Locations of field monitors and drive station posts are both considered modifications that may be made at the EP’s discretion under rule <T22>. If used, these locations must be the same across all fields of that type (head-to-head or skills) at that event.

https://www.robotevents.com/VRC/2023-2024/QA/1578

* Some screenshots may be cropped for space
Notable Early Season Q&A’s

G8C and Match load assistance

Jacob Church (Event Partner) 11-Jun-2023

Is there any openness to utilizing anything to assist in holding and placing match loads?

Could the carrying case for the robot be utilized as a table for preloads during a match to ease the usage of match loads specifically on raised fields?

Answered by committee 23-Jun-2023

Thank you for your question. As you quoted from clause ‘c’ of rule <G8>, “Drive Team Members are prohibited from ... bringing / using additional materials to simplify the game challenge during a Match.” This would include devices to aid with Match Loading.

The Event Partner may provide boxes, tables, or other devices to contain and/or elevate Match Loads at their discretion under rule <T22>, but any devices must be consistent across all fields, Alliance Stations, Matches, and Teams.

https://www.robotevents.com/VRC/2023-2024/QA/1538

*Some screenshots may be cropped for space
Notable Early Season Q&A’s

Loading a moving catapult arm

Doug Hepfer (Event Partner)  15-Jun-2023

Rule SG6 allows a human player to place a Match Load gently onto a Robot from the Drive Team Member’s Alliance. We have observed several instances where a human is reaching out to place a Triball in a robot’s catapult. How does rule SG6 interact with rule S1. Specifically, does rule S1 require that the catapult arm be stationary when the Triball is being loaded? We stopped several teams from loading Triballs in a catapult arm that was continuously snapping forward and back, as students had trouble timing the placement of the Triball to avoid having their hand hit by the moving catapult.

There are very many rules this year that are settled only by the judgement of a head referee at an event. Should rule SG2 require that the catapult arm be stationary when the Triball is being loaded to avoid having different referees rule differently on what is considered unsafe under S1?

https://www.robotevents.com/VRC/2023-2024/QA/1553

* Some screenshots may be cropped for space
**Additional Resources**

**VEX Library / STEM Labs**

*Getting Started with VRC '23-'24 Robot Design: C*

**Introduction**

The purpose of this article is to offer helpful information for those interested in VEX Robotics Competition (VRC) game Over Under. Topics in this article include tips and tricks to make it your own.

**Lesson 1: Building and Driving Striker**
- First, review the VEX VRC Over Under game rules and use this guide as a guide to building your own robot.
- Then, practice driving your robot to get familiar with how it moves and reacts to obstacles.

**Lesson 2: Driving Skills**
- Practice by driving your robot on a variety of surfaces, such as carpets or smooth floors, to improve your driving skills.
- Use different speeds and turns to become more comfortable with controlling your robot.

**Lesson 3: Autonomous Coding Skills**
- Learn how to use the VEX VRC Over Under Auto mode to complete the game autonomously.
- Practice writing code to control your robot and make it perform specific tasks.

**VEXcode VR / VR Skills**

*Using the VRC Over Under Playground Window*

The VEX Robotics Competition (VRC) Virtual Skills Playground is a virtual representation of the VRC Over Under 2023-2024 Competition Game. The Virtual Skills Over Under Playground Window is a space for a virtual version of this year’s Hero Bot, Striker, to play VRC Over Under Virtual Skills.

**RECF Library**

*VRC Drive Team Training Course: 2023-24, Over Under*

This certification course is designed to teach VEX Robotics Competition (VRC) team members the nuances of the VRC game rules and how VRC Tournaments are run. Students are expected to understand the rules of the game, and to advocate for themselves if they feel the rules are being misapplied or misunderstood by the local Reference or chief event overseer.

**VRC Robot Inspection: Details and Edge Cases**

**Rule 4R: Robot Sizing**
- Robots must fit in a sizing box. Robots must be able to satisfy <0.5, and begin each Match in a volume smaller than 10” (43.72 mm) long by 10” (43.72 mm) wide by 10” (43.72 mm) tall.

Head Referee Certification

*REC Library / Volunteers / Referee / VRC Head Referee Training & Certification Course*

All official REC Foundation events that qualify teams to a Championship event are required to have a Certified Head Referee, and all Referees are encouraged to use this certification course for training. If there is anything in the certification course that is in disagreement with the Official Game Manual, the Official Game Manual should be followed.

Need to reach us about a course or certification? Email us at volunteers@recf.org.
Note from the VEX GDC: The rules contained in this Game Manual are written to be enforced by human Head Referees. Many rules have “black-and-white” criteria that can be easily checked. However, some rulings will rely on a judgment call from this human Head Referee. In these cases, Head Referees will make their calls based on what they and the Scorekeeper Referees saw, what guidance is provided by their official support materials (the Game Manual and the Q&A), and most crucially, the context of the Match in question.

The VEX Robotics Competition does not have video replay, our fields do not have absolute sensors to count scores, and most events do not have the resources for an extensive review conference between each Match.

When an ambiguous rule results in a controversial call, there is a natural instinct to wonder what the “right” ruling “should have been,” or what the GDC “would have ruled.” This is ultimately an irrelevant question; our answer is that when a rule specifies “Head Referee’s discretion” (or similar), then the “right” call is the one made by a Head Referee in the moment. The VEX GDC designs games, and writes rules, with this expectation (constraint) in mind.
THANK YOU