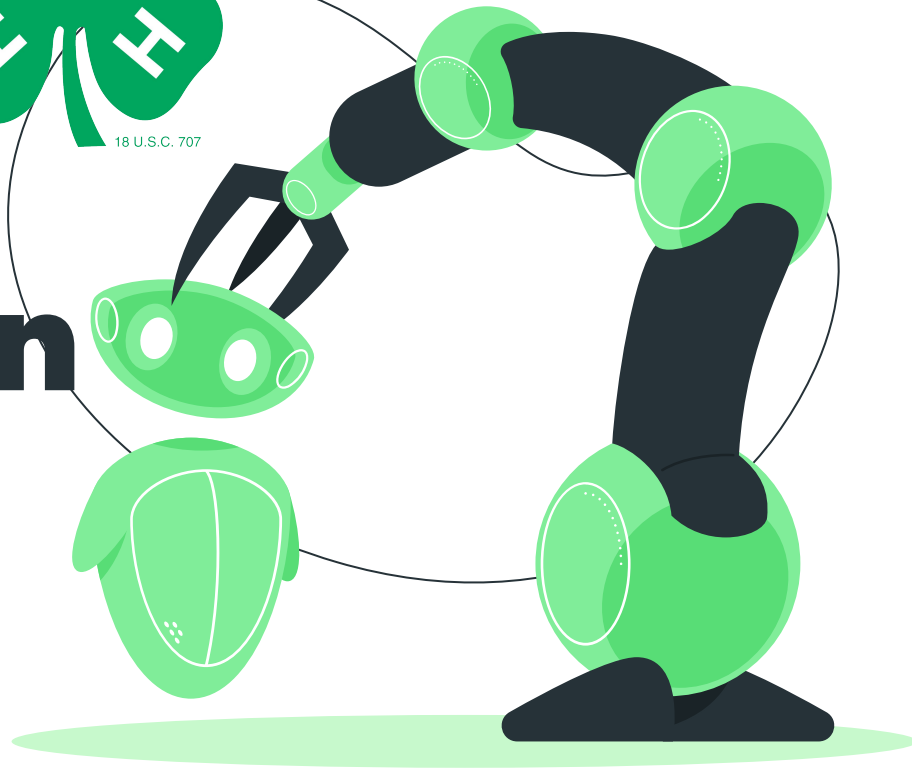


2024 4-H Robotics Competition

State Field Day – UC Davis
May 25, 2024
9:30am–11:00am



18 U.S.C. 707



Three Competition Areas

4-H members can register for one, some, or all of the following competition areas:



1

Robotics VEX IQ Full Volume Competition

2

Robot Design & Build

3

Engineering Notebook

1. Robotics VEX IQ Full Volume Competition



<https://www.youtube.com/watch?v=100tfTCiVmc>

1. Robotics VEX IQ Full Volume Competition

GAME OVERVIEW: *(NOTE: 4-H game rules may differ from VEX game rules)*

- In the VEX IQ Full Volume game, 4-Hers will use their robot to move blocks from both the field and the supply zone to the three goals located in the corners of the field.
- Points are earned by moving blocks from around the field into the three goals located in the corners of the playing field.
- Points are also earned by both moving the red blocks (3) from their starting station and by removing all of the blocks from the supply zone. See the Points slide for additional information on how points can be earned.
- At the end of the game, robots can receive additional points for parking their robot in the supply zone.
- Each team will be playing solo on the field and not paired with another team. Each team will have two 120-second rounds to play. The highest score from either game will be the team's final score. Teams may switch players at the 60 second mark of each play.

The Field

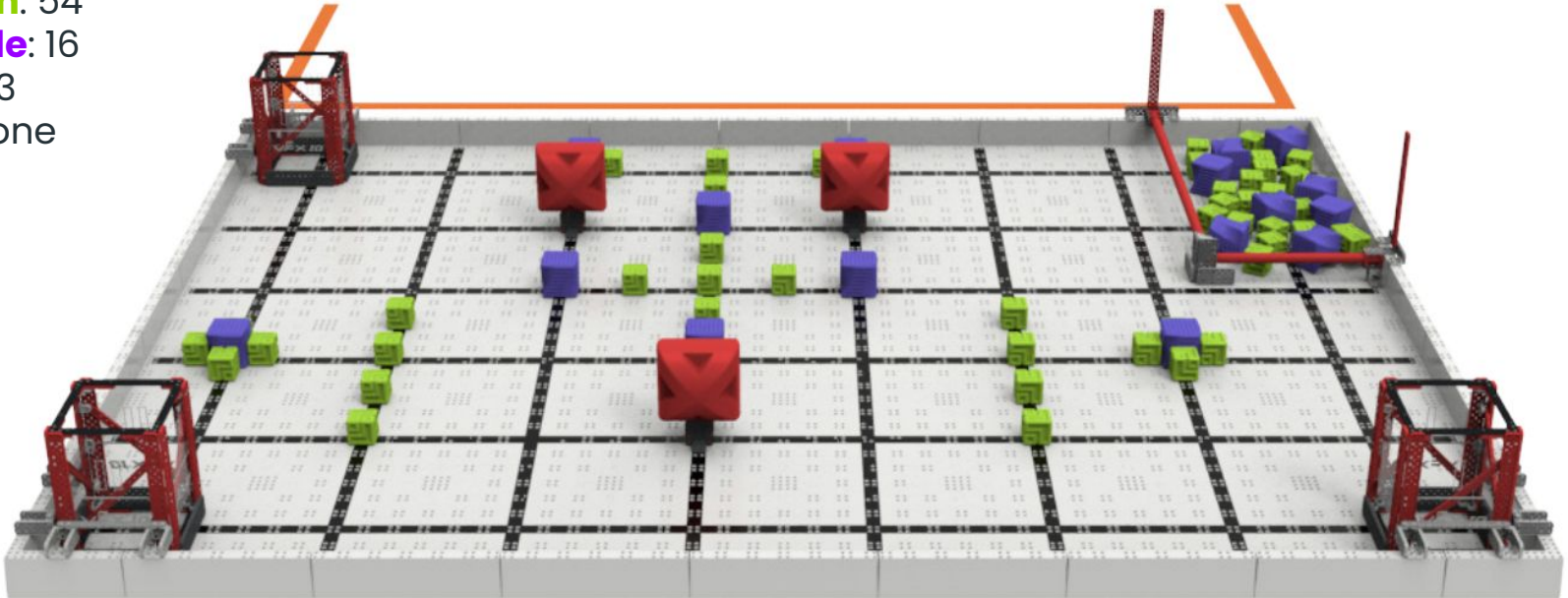
On the Field:

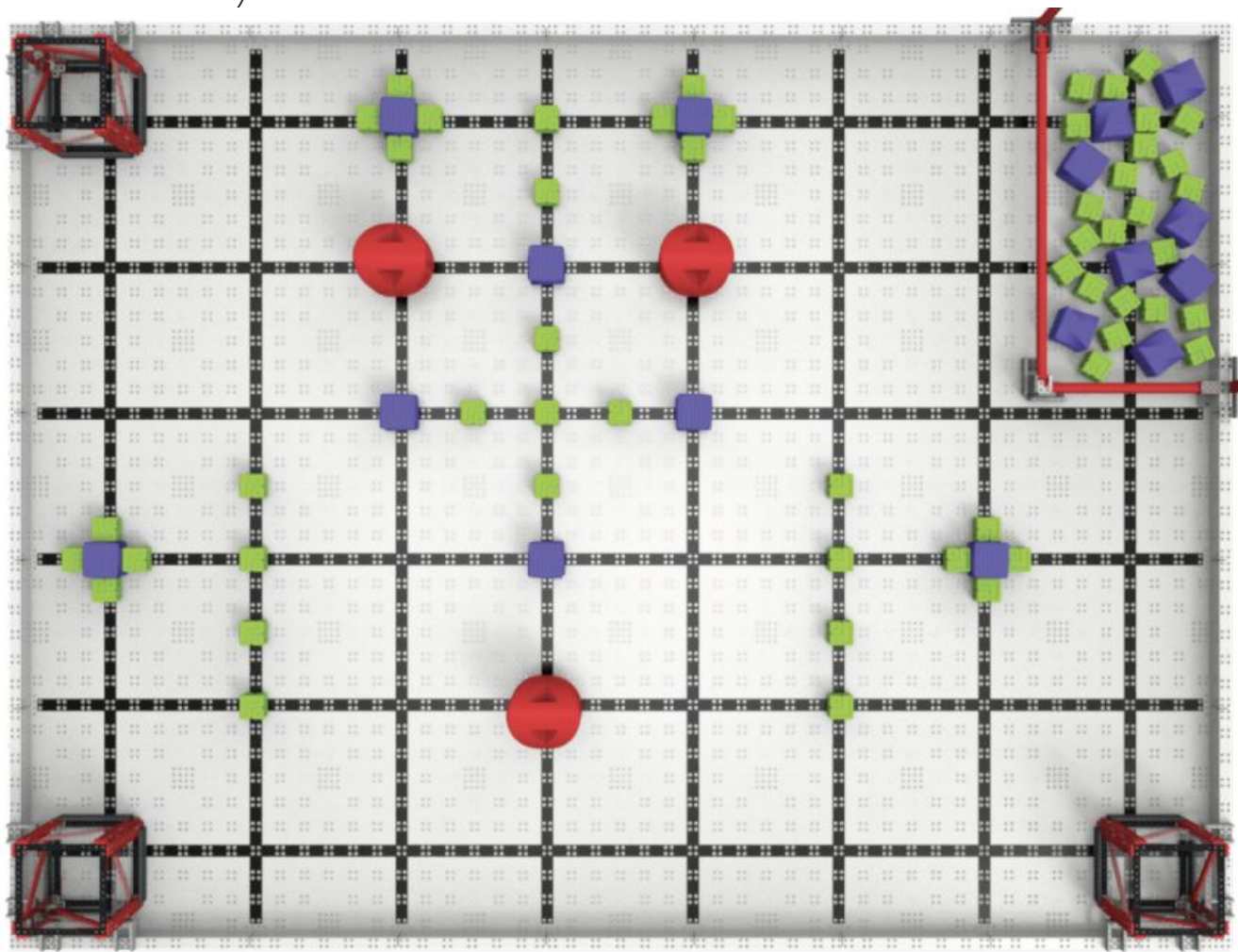
3 Goals

73 Blocks (42 in the field, 31 in the supply zone)

- **Green:** 54
- **Purple:** 16
- **Red:** 3

1 Supply Zone





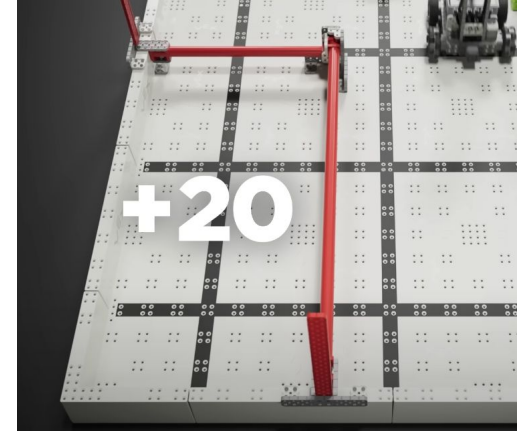
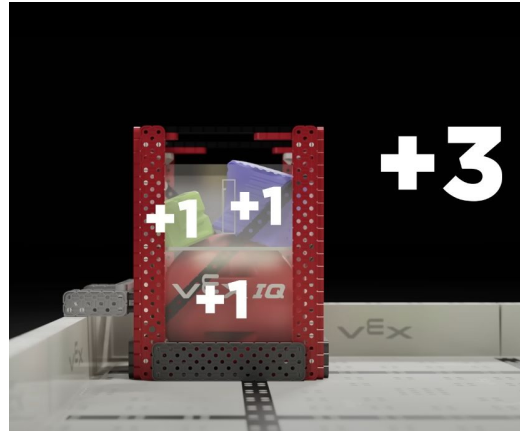
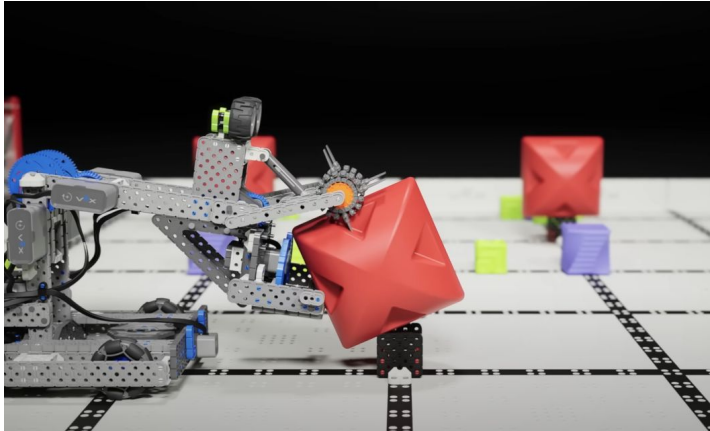
Points and Scoring

Points for Blocks

Each red block removed from their starting peg: **5 points**

Empty the supply zone: **20 points**

Each box scored in any goal: **1 point**



Points and Scoring Cont'd

Points for Goals

Height Bonus: Additional points are awarded based on how full the goals are filled.

Low (**10 Points**), Medium (**20 Points**), High (**30 Points**)

Uniform Goals: If all the blocks scored in a single goal are the same type, the team earns **10 additional points** (in addition to 1 point per block).

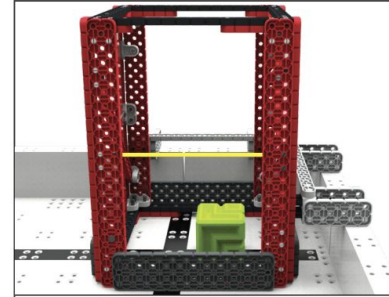


Figure 12: This Goal would be considered Uniform, because it contains at least 2 Blocks, all of which are the same type.

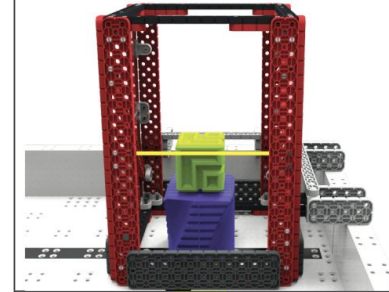


Figure 13: This Goal would not be considered Uniform, because not all of the Blocks Scored inside it are the same type.

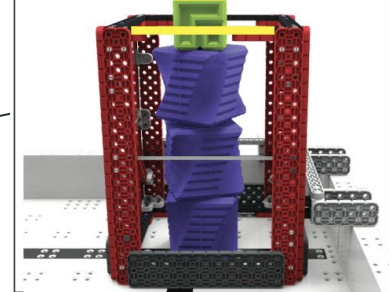
LOW



MEDIUM



HIGH



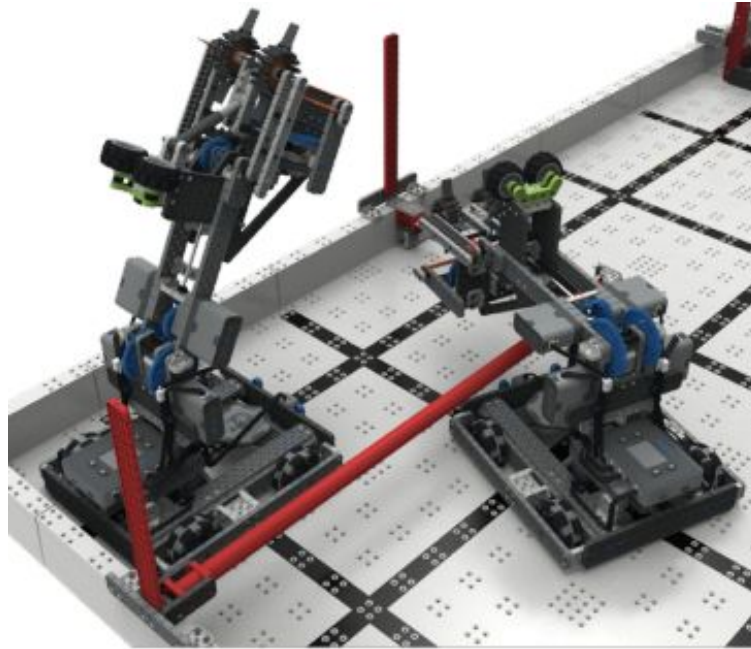
Points and Scoring Cont'd

Points for Parking:

At the end of the game, players can park their robot in the Supply Zone for additional points.

Partially Parked: **5 points**

Fully Parked: **10 points**

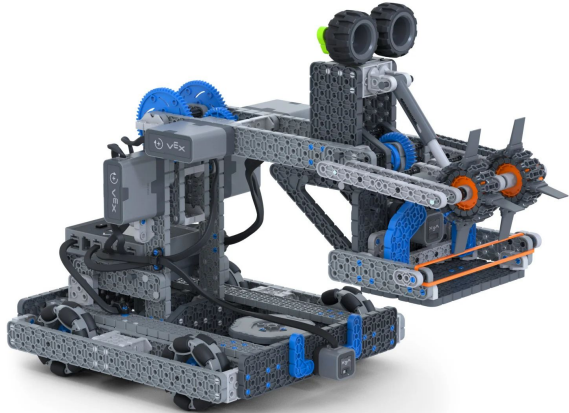


Robot A: Fully Parked ✓

Robot B: Partially Parked ✓

Robot Type

Players may build and bring **any robot** they would like. This game is **not restricted** to VEX robotics. Please see the presentation on How to Lead a 4-H Robotics Project for more information. Otherwise, the basic bot below will allow you to play in this game.



Hero Bot for the 2023-24 VEX IQ Robotics Competition, Full Volume.

[PDF Build Instructions >](#)

[3D Build Instructions part 1 >](#)

[3D Build instructions part 2 >](#)

[Coding Byte Article >](#)

Requires the IQ (2nd gen) Competition Kit to build

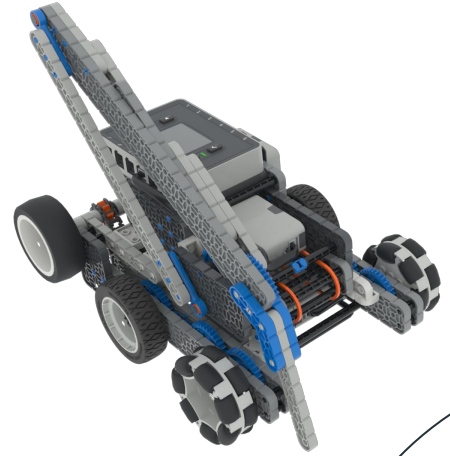
2. Robot Design & Build

GAME OVERVIEW:

- Judges will come around to each team's station to review your robot. While reviewing the teams robot, judges will ask questions to the team members about their robot. Remember to introduce yourself to the judges and come prepared to talk about how you and your team built your robot.

SCORING: (Out of 20)

- 10 PTS - Completed robot.
- 5 PTS - Modifications to standard build.
- 3 PTS - Presentation when answering judges questions.
- 2 PTS - Team name displayed on robot.



3. Engineering Notebook

GAME OVERVIEW:

- At the beginning of the competition, team engineering notebooks will be submitted for evaluation.

SCORING: (Out of 20)

- 10 PTS - Completed notebook (all components included - see next slide)
- 5 PTS - Structure of notebook (is it understandable and well organized)
- 3 PTS - Multiple entries and noted modifications with explanations.
- 2 PTS - Photos/sketches included in entries.

Example of Engineering Notebook:

<https://roboticseducation.org/documents/2016/11/vex-iq-challenge-engineering-notebook.pdf/>



3. Engineering Notebook

COMPONENTS OF A COMPLETED ENGINEERING NOTEBOOK:

1. Title Page

- a. Team Name
- b. A list of team members.
- c. Start Date and End Date of that specific notebook.

2. Table of Contents

- a. Entry dates, Entry titles, & Page numbers

3. Meeting Entries and Reflections

- a. Page number.
- b. Title of work completed with date.
- c. Detailed descriptions of the work done that day.
 - i. Text, sketches, photos, text plans/results, brainstormed lists, and ideas for the future.



See you there!

We look forward to seeing you at
the 2024 CA 4-H State Field Day!

