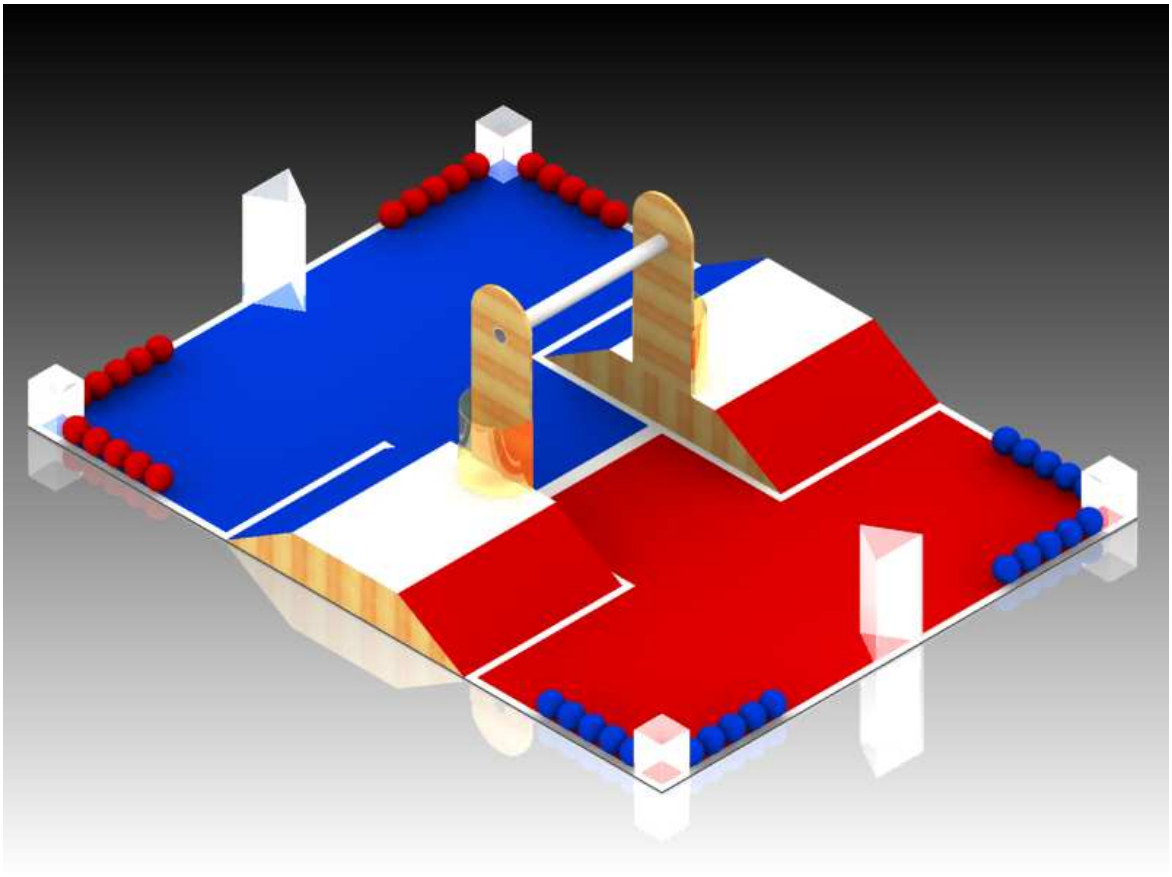
VERTIGO



Vertigo is played on a 96” x 72” foam tile field configured as seen above. Two alliances – one "red" and one "blue" – composed of two teams each, compete in matches consisting of two minutes of driver-controlled play.

The object of the game is to attain a higher score than your opponent's alliance by scoring balls in any of the eight goals.

Bonuses are awarded to the alliance that has the highest ball in a goal, are on either platform, or are hanging from the central bar.

Details:

There are a total of sixty (60) pit balls (30 red, 30 blue) available as scoring objects in the game.

The field is divided down the center by the center structure which is composed of two (2) 24” wide ramps and a 24” gap that is home to the center bar. This structure separates the two alliances of two robots onto opposite sides of the field at the start of the match. Each robot (no larger than 14"x14"x14" to start) begins a match on their side of the field touching either of the ramps on their

alliance side. There are four (4) 6" tall square goals located in the corners of the field, two (2) 14" tall triangular goals located on the center of each alliance station wall, and two (2) 9" tall semicircular goals located on the top of either ramp that are available for scoring.

At the start of the match, alliance colored pit balls are placed in rows of five (5) along the edges of the field in the opposing alliance zone. Each robot will be allowed to start with five (5) preloaded balls.

Scoring:

Ball in goal:	2 points
Highest ball in goal:	5 point bonus
Ball in alliance zone:	1 point
Parked on platform at end of match:	8 points
Hanging from bar at end of match:	15 points

Game Pieces:

30 red pit balls

30 blue pit balls

Game Definitions:

Alliance – A pre-assigned grouping of two teams that work together for a given *match*.

Alliance Station – The designated region where the *drivers* and *coach* stand during any *match*.

Bar – The 24" high 2" diameter PVC tube which divides the playing field in two halves.

Coach -- A designated team member to provide strategy or moral support for *drivers*. Only one (1) of these is allowed per team on the field at any given time.

Driver - A team member responsible for operating and controlling the *Robot*. Only two (2) of these are allowed per team on the field at any given time.

Field Element – A *goal*, the *bar* or a playing field wall.

Goal – One of the four (4) square shaped (4.25"x4.25"), 6" tall field structures; two (2) 9" tall half circles (9" diameter) located on top of each *ramp*; two (2) 7" equilateral triangles, 14" tall.

Match - A *match* consists 2:00 (two minutes) of driver controlled play.

Pit Ball – A 3" diameter spherical scoring object.

Platform - 24"W x 16"L x 6" H flat surface, connected to two (2) *ramps*.

Ramp – 31° (degree) incline that is 24" wide that leads to a 24"W x 16"L x 6" H flat surface.

Robot – Any Vex powered or VexPlorer powered vehicle (which has passed inspection) a team places on the field prior to the start of a *match*.

Scored – A *ball* is *scored* in a *goal* if ANY of a *ball* is within the space defined by the edges of the *goal*, and not touching a *robot* of the *alliance* that the *pit ball* belongs to.

Note: A *goal* extends infinitely perpendicular to the playing field surface within the *goal* boundaries.

Scoring Zone – One of two (2) rectangular areas, one (1) for each alliance, in which teams can *score balls*. *Scoring zones* are defined by the inner edges of the playing field walls and a tape line at mid field.

General Game Rules:

<G-1> At the beginning of a *match*, each *robot* must not exceed a volume of 14 inches wide by 14 inches long by 14 inches tall. An offending *robot* will be removed from the match at the Head Referee's discretion.

a. Alignment devices (templates, tape measures, lasers, etc.) that are not part of the *robot* may NOT be used to assist with the positioning of the *robot*.

<G-2> Each team shall include up to two *drivers* and one *coach*.

<G-3> During a *match*, the *drivers* and *coach* must remain in their *alliance station*.

<G-4> *Balls* that leave the playing field are NOT considered out of play. These objects will be returned to the field at the point it left.

<G-5> *Drivers* and *coaches* are prohibited from making intentional contact with any game or field object or robots during a *match.* Any intentional contact will result in a disqualification. Accidental contact will not be penalized, unless the contact directly impacts the final score of the match. This type of accidental contact will result in a disqualification

<G-6> During a *match*, *robots* may be remotely operated only by the *drivers* and/or by software running in the on-board control system. If a *coach* touches his/her team's controls anytime during a *match*, the *robot* will be disabled and the team disqualified.

<G-7> Scores will be calculated for all *matches* immediately after the *match* or when all objects on the field come to rest.

<G-8> *Robots* may not intentionally detach parts during any *match*, or leave mechanisms on the field. If a detached component or mechanism prevents scoring the team will be disqualified. Multiple intentional infractions may result in disqualification for the entire competition.

<G-9> Strategies aimed solely at the destruction, damage, tipping over, or entanglement of *robots* are not in the spirit of competition and are not allowed. However, *Vertigo* is an interactive game. Some tipping, entanglement, and damage may occur as a part of normal game play. If the tipping, entanglement, or damage is ruled to be intentional, the offending team may be disqualified from that *match*. Repeated offenses could result in a team being disqualified from the remainder of the competition.

<G-10> *Robots* must be designed to permit easy removal of *balls* from any grasping mechanism without requiring that the *robot* have power after the *match*.

<G-11> Field tolerances may vary by as much as +/-1", so teams must design their *robots* accordingly.

<G-12> *Pit Ball* tolerances may vary by as much as +/-1/8", so teams must design their *robots* accordingly.

<G-13> Replays will NOT be permitted, no matter the situation.

<G-14> All teams must adhere to all Vertigo rules as they are written, and must abide by the listed intent of the rules. Every team has the opportunity to ask for official rules interpretations. All questions are to be directed to the game design committee or head referee.

<G-15> All teams are expected to conduct themselves in a respectful and professional manner while competing at the Rah Cha Cha Ruckus event. If team members are disrespectful or uncivil to event staff, volunteers or fellow competitors, they may be disqualified from their current or upcoming *match*.

Vertigo Specific Rules:

<V-1> At the beginning of each *match*, each *alliance robot* must be placed such that they are touching a ramp within their *alliance zone* and opposite the opposing *alliance station* and not touching any *ball* other than those permitted by **<V-2>**.

<V-2> Prior to the start of each *match*, each team will have five (5) *pit balls* available to preload into their robots.

a. A *ball* is considered to be legally preloaded if it is touching the *robot*.

<V-3> A robot is determined to be *hanging* from the *bar* when there is no contact made with the foam playing field or *platform*.

Robot Rules:

<R-1> Only one (1) robot will be allowed to compete per team in the VEX Robotics Competition. Though it is expected that teams will make changes to their robot at the competition, a team is limited to only one (1) robot.

a. Teams may not compete with one robot, while a second is being modified or assembled.

b. Teams may not switch back and forth between multiple robots during a competition.

<R-2> Every robot will be required to pass a full inspection before being cleared to compete. This inspection will ensure that all robot rules and regulations are met. Initial inspections will take place during team registration/practice time.

a. If significant changes are made to a robot, it must be re-inspected before it will be allowed to compete.

b. All robot configurations must be inspected before being used in competition.

c. Teams may be requested to submit to random spot-inspections by event personnel. Refusal to submit will result in disqualification.

d. Referees or inspectors may decide that a robot is in violation of the rules. In this event, the team in violation will be disqualified and the robot will be barred from the playing field until it passes re-inspection.

<R-3> The following types of mechanisms and components are NOT allowed:

a. Those that could potentially damage playing field components.

b. Those that could potentially damage other competing robots.

c. Those that pose an unnecessary risk of entanglement.

<R-4> At the beginning of any match, the maximum allowed size of a robot is 14” x 14” x 14”.

a. During inspections, robots will be placed into a “sizing box” which has interior dimensions matching the above size constraints. To pass inspection, a robot must fit within the box without touching the box walls or ceiling.

b. Robots may expand beyond their starting size constraints after the start of a match.

c. Any restraints used to maintain starting size (i.e. zip ties, rubber bands, etc) MUST remain attached to the robot for the duration of the match.

<R-5> Robots may be built ONLY from Official **Robot** Components from the VEX Robotics Design System unless otherwise specifically noted within these rules.

a. During inspections if there is questions about whether something is an official VEX component or allowed add-on as per rule **<R-6>**, a team will be required to provide documentation to an inspector, which proves the component's source. Such types of documentation include receipts, part numbers, or other printed documentation.

<R-6> Official VEX products and up to twenty (20) dollars of materials other than VEX product may be used.. To determine whether a product is "official" or not, consult www.VEXrobotics.com.

a. Products **identical** to those listed on this site are also considered "official VEX products". Note: It is up to inspectors to determine whether a component is "identical" to an official VEX component.

b. Teams may be asked to provide a Bill-of-Materials for their allotment of extra parts.

<R-7> Robots are allowed the following additional "non-VEX" components:

a. Any material strictly used as a color filter for a VEX Light Sensor.

b. Any parts which are identical to legal VEX parts.

c. Any part that is commercially available to ALL teams. Parts must be tracked on a Bill-of-Materials according to **<R-6a>**.

d. Teams may add non-functional decorations provided that these do not affect the robot performance in any significant way or affect the outcome of the match. These decorations must be in the spirit of the competition. Inspectors will have final say in what is considered "nonfunctional".

e. Any non-aerosol based grease, when used in **extreme** moderation on surfaces and locations that do NOT come into contact with the playing field walls, foam field surface, game objects, or other robots.

<R-9> Robots must use ONLY one (1) VEX Microcontroller.

<R-10> Robots must ONLY utilize the VEX 75Mhz Crystal Radio system for all robot communication.

a. VEXnet will not be available.

b. Electronics from the VEX-RCR product line are ALLOWED including all VEXplorer electronics.

<R-11> Robots may use up to ten (10) VEX motors or VEX Servos (Any combination, up to ten)

<R-12> A maximum of one (1) VEX Y-cable can be used per Motor Port of the Microcontroller or Power Expander. (You cannot "Y off a Y" to have more than two (2) motors controlled by the same Motor Port.)

a. Each team is allowed to utilize up to two (2) Y-cables.

<R-13> The only allowable source of *electrical* power for a VEX Robotics Competition Robot is a single (1) 7.2V battery pack, unless the robot is utilizing the VEX Power Expander. Robots utilizing the VEX Power Expander can use a second (2) 7.2V battery.

a. Additional batteries cannot be used on the robot (even ones that aren't connected).

b. Robots are permitted to use a maximum of one (1) VEX Power Expander

<R-14> No more than two VEX hand-held transmitters may control a single robot during the tournament. No modification of these transmitters is allowed of ANY kind.

a. No other methods of controlling the robot (light, sound, etc) are permissible.

<R-15> Parts may NOT be modified as follows:

a. Motors, extension cords, sensors, controllers, battery packs, and any other electrical component of the VEX Robotics Design System may NOT be altered from their original state in ANY way.

b. Welding, soldering, brazing, gluing, or attaching in any way that is not provided within the VEX Robotics Design System will NOT be allowed.

- Mechanical fasteners may be secured using Loctite or a similar thread-locking product.
    - This may be used for securing hardware ONLY.

<R-16> The Robot on/off switch must be accessible without moving or lifting the robot. The Robot Microcontroller lights should also be visible by competition personnel to assist in diagnosing robot problems.

<R-17> Teams must bring their robots to the field prepared to play. Teams who use VEX pneumatics must have their systems charged before they place the robot on the field.

GDC Contact Info:

All questions regarding game or registration should be sent to any of the following:

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